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VOLUME XIII

PART II

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FLORA OF PERU

PART II

BY

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FLORA OF PERU

J. Francis Macbride

40. PIPERACEAE. Pepper Family

By William Trelease

Herbs, shrubs, or small trees; leaves usually alternate, sometimes opposite or verticillate, entire; stipules none or adnate to the petiole; flowers minute, usually green, perfect or unisexual, in spikes or racemes, these pedunculate, terminal or opposite the leaves, sometimes axillary or several on a common peduncle, the flowers usually densely crowded in the spike, sometimes annulately or spirally arranged; bracts usually peltate, sessile or stipitate, sometimes adnate or concave; perianth none; stamens usually 2–6, the filaments free, the anthers terminal, erect, 2-celled; ovary sessile or stipitate, 1-celled, 1-ovulate; fruit baccate, very small.

Stigma 1; plants herbaceous, usually small, most often epiphytic. 1. *Peperomia.*

Stigmas usually 3; plants large, usually woody and terrestrial.

Spikes in an axillary umbel..... 2. *Pothomorphe.*

Spikes opposite the leaves.

Spikes solitary..... 3. *Piper.*

Spikes often accompanied by a collateral spike. 4. *Pleiostachyopiper.*

1. PEPEROMIA R. & P.

Annual or perennial herbs, epiphytic or terrestrial, usually very fleshy; leaves alternate, opposite, or verticillate, without stipules; flowers scattered or densely crowded upon the rachis, often partly immersed in pits; stamens 2. A vast genus, with many species in almost all parts of tropical America.

A. Plants acaulescent.

Leaves distinctly peltate.

Leaves scarcely 1 cm. in diameter; spikes single.

Spikes scarcely 10 cm. long.

Berries much wrinkled; stylopodium thick.

Berries ellipsoid..... *P. parvifolia.*

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Berries subovoid..... *P. verruculosa.*
Berries not wrinkled.
Corm small..... *P. minuta.*
Corm large..... *P. macrorhiza.*
Spikes distinctly longer; stylopodium elongate.
Spikes 20 mm. long..... *P. Seleri.*
Spikes 60–80 mm. long..... *P. Hillii.*
Leaves 1–2 cm. in diameter; stylopodium elongate.
Spikes scarcely over 10 mm. long..... *P. umbilicata.*
Spikes 20–60 mm. long..... *P. peruviana.*
Leaves 2–4 cm. in diameter.
Spikes 15–30 mm. long..... *P. falsa.*
Spikes 50–60 mm. long.
Leaves from a corm..... *P. scutellaefolia.*
Leaves from a rhizome..... *P. rupiseda.*
Spikes 90–100 mm. long..... *P. polycephala.*
Leaves not peltate, 2–4 cm. wide.
Spikes single, elongate..... *P. Sprucei.*
Spikes paniculate, short..... *P. villipetiola.*

A. Plants with leafy stems.

B. Leaves alternate but sometimes congested upward.

C. Leaves distinctly peltate.

Spikes paniculate; leaves 10–15 cm. long..... *P. tarapotana.*
Spikes not paniculate.
Leaves 10–15 cm. long.
Plants glabrous.
Spikes from axils of reduced leaves..... *P. dependens.*
Spikes subtended by ordinary leaves..... *P. variegata.*
Plants hairy..... *P. Schunkeana.*
Leaves 6–10 cm. long.
Leaves glabrous..... *P. rugata.*
Leaves ciliate..... *P. majalis.*
Leaves commonly 4–6 cm. long.
Plants glabrous.
Leaves round-ovate..... *P. deficiens.*
Leaves more elongate..... *P. puberulaeformis.*

Plants crisp-pubescent..... *P. cuprea.*
Plants subvillous..... *P. arborigaudens.*
Leaves 2.5–4 cm. long; plants pubescent..... *P. flavescens.*
C. Leaves at most obscurely subpeltate at the base.
D. Spikes paniculate.
Leaves 10–15 cm. long, pinnately nerved.
Spikes very short; glabrous..... *P. Lechleriana.*
Spikes elongate.
Plants pubescent.
Leaves ovate..... *P. spectabilis.*
Leaves elliptic..... *P. striata.*
Plants glabrous.
Leaves elliptic-oblanceolate..... *P. balsapuertana.*
Leaves oblanceolate.
Panicle branched..... *P. arcuatispica.*
Panicle simple..... *P. uncatispica.*
Leaves lanceolate..... *P. acutifolia.*
Leaves 6–10 cm. long, pinnately nerved, glabrous.
P. Weberbaueri.
Leaves 4–6 cm. long.
Leaves round, cordate, submultiple-nerved.
Plants appressed-villous; panicle ample..... *P. secunda.*
Plants subglabrescent; panicle with a few branches.
P. Macbrideana.
Leaves obovate, acute-based, glabrous.
Leaves palmately nerved..... *P. arboriseda.*
Leaves pinnately nerved..... *P. obliqua.*
Leaves 2.5–4 cm. long, cleaver-shaped, vertical rather than horizontal..... *P. dolabriformis.*
Leaves 1–2.5 cm. long.
Leaves compressed from the side.
Leaves glabrous..... *P. nivalis.*
Leaves ciliate on the keel.
Spikes 20 mm. long..... *P. lepadiphylla.*
Spikes 40 mm. long..... *P. naviculaefolia.*

Leaves broader than thick ..... *P. macrothyrsa.*

D. Spikes umbellate or solitary, attached at the end of the peduncle.

Leaves 2.5–4 cm. long.

Plant glabrous ..... *P. foliiflora.*

Plant pubescent ..... *P. Haenkeana.*

Leaves scarcely 2.5 cm. long.

Leaves cordate; spikes several ..... *P. phyllantha.*

Leaves not cordate; spikes solitary.

Leaves 5–7-nerved ..... *P. Fortunati.*

Leaves 3-nerved ..... *P. umbelliformis.*

D. Spikes neither paniculate nor umbellate nor attached to the end of the peduncle.

E. Leaves 10–15 cm. long.

Plants villous; leaves ovate ..... *P. yapasana.*

Plants crisp-pubescent; leaves elliptic, narrowly acuminate. *P. pubiramea.*

Plants glabrous.

Leaves ovate, cordate or round-based.

Stem very short; nerves palmate ..... *P. curtipes.*

Stem elongate.

Nerves palmate ..... *P. pinedoana.*

Nerves multiple.

Leaves with nearly simple midrib ..... *P. itayana.*

Leaves nerved from the lower third. *P. pseudorhynchophora.*

Leaves nerved from the lower two-thirds. *P. pergamentacea.*

Leaves elliptic, acute-based, pinnately nerved.

Leaves half as broad as long.

Ovary sharp-beaked ..... *P. quimiriana.*

Ovary not beaked ..... *P. exiliramea.*

Leaves more elongate ..... *P. tenuiramea.*

Leaves lanceolate, pinnately nerved.

Spikes 2 mm. thick ..... *P. binispica.*

Spikes 5 mm. thick ..... *P. huacachiana.*

Leaves obovate-palmate, pinnately nerved.
Spikes 2 mm. thick.
Leaves scarcely emarginulate..... *P. cruciata.*
Leaves emarginulate..... *P. Fieldiana.*
Spikes 5–10 mm. thick..... *P. emarginata.*
E. Leaves 6–10 cm. long.
F. Leaves palmately nerved.
Leaves broad.
Leaves velvety throughout..... *P. pubinervosa.*
Leaves fugaciously pubescent ..... *P. rhombiformis.*
Leaves ciliate and locally puberulent, blunt-acuminate. *P. Poeppigii.*
Leaves glabrous.
Leaves acute at the base.
Leaves prominently cross-veined..... *P. enckeaefolia.*
Leaves not prominently cross-veined.... *P. chartacea.*
Leaves rounded at the base or cordulate.
Leaves pale-areolate..... *P. areolata.*
Leaves white between the nerves.
Leaves orbicular..... *P. procumbens.*
Leaves subelliptic..... *P. sarcostachya.*
Leaves purple beneath..... *P. monostachya.*
Leaves uniformly rosy..... *P. rubrifolia.*
Leaves elongate, acute-based.
Stem winged..... *P. alata.*
Stem not winged..... *P. non-alata.*
F. Leaves pinnate- or multiple-nerved.
G. Leaf base acute.
Plants glabrous.
Leaves clustered at the top of the stem, acuminate. *P. racemifolia.*
Leaves scattered.
Spikes not paired.
Leaves subobovate..... *P. acuminata.*
Leaves ovate..... *P. purpurea.*
Leaves subrhombic-elliptic..... *P. basellaefolia.*

Leaves lanceolate.....*P. bermudezana.*
Spikes paired.
Leaves obovate.....*P. elegantifolia.*
Leaves ovate-elliptic.....*P. granulatilimba.*
Leaves lance-ovate.....*P. santiagoana.*
Leaves elliptic.....*P. elegans.*
Leaves rhombic-ovate.....*P. mercedana.*
Leaves and petioles ciliate.
Leaves elliptic.....*P. ciliatifolia.*
Leaves broadly lanceolate.
Spikes 150 mm. long.....*P. quatrometralis.*
Spikes shorter.
Plant subrepent.....*P. semisupina.*
Plant erect.....*P. blepharipus.*
Plants locally puberulent.....*P. timbuchiana.*
Plants crisp-pubescent.....*P. enenyasensis.*
G. Leaf-base auriculate.....*P. pilosa.*
G. Leaves cordate, submultiple-nerved.
Leaves about 5 cm. wide.
Plants somewhat pubescent.....*P. juniniana.*
Plants glabrous.....*P. erythrostachya.*
Leaves wider, glabrous.
Stem short and few-leaved.....*P. curticaulis.*
Stem elongate.
Leaves subtruncate at the base.....*P. ainana.*
Leaves cordate.
Peduncle 3 cm. long.....*P. longepedunculata.*
Peduncle 7–10 cm. long.....*P. Opiziana.*
G. Leaf base rounded.....*P. santiagoana.*
E. Leaves 4–6 cm. long.
F. Leaves pinnate- or multiple-nerved.
Leaf base acute or subacute.
Leaves scarcely 2 cm. wide.
Stems compactly branched.
Leaves papillate.....*P. crystallina.*
Leaves not papillate.....*P. metallica.*

Stem slender and elongate.....*P. pseudo-salicifolia.*
Leaves distinctly wider.
Berries slender-beaked.
Plants pubescent.
Leaves acute.....*P. sylvatica.*
Leaves obtuse.....*P. teresitensis.*
Plants glabrous.
Leaves elliptic-obovate.
Spikes 50 mm. long.....*P. emarginulata.*
Spikes longer.....*P. deodorata.*
Leaves round-obovate.....*P. haematolepis.*
Leaves oblanceolate.....*P. parvipunctulata.*
Leaves rhombic-elliptic.....*P. elliptico-rhombea.*
Berries mucronate.....*P. rhombilimba.*
Berries scutulate-truncate.
Plants tomentulose.....*P. pertomentella.*
Plants transiently pubescent; leaves ovate.
Leaves drying coriaceous.....*P. coloniae.*
Leaves drying thin.....*P. pachiteana.*
Plants somewhat puberulent.....*P. ciliatifolia.*
Plants somewhat ciliate and granular.
Leaves lance-elliptic.....*P. scutaleifolia.*
Leaves elliptic.....*P. flavescentifolia.*
Leaves subovate.....*P. granulatifolia.*
Leaves cordate, glabrous.
Leaves becoming subtriangular.....*P. crotalophora.*
Leaves round-ovate.
Stem slender and fragile.....*P. fragilissima.*
Stem stronger.....*P. huacapistanana.*
F. Leaves palmately nerved.
Leaves cordate.
Plants puberulent.....*P. Grisari.*
Plants glabrous.
Spikes solitary.
Leaves subacuminate.....*P. gibba.*
Leaves obtuse.....*P. rufescens.*

Spikes paired..... *P. currucaeformis.*

Leaves rounded at the base, glabrous.

Leaves obtuse..... *P. alismaefolia.*

Leaves subacute.

Blade narrowed to the petiole, subacuminate. *P. rufescentifolia.*

Blade crossing the petiole..... *P. verediana.*

Leaves acute at the base.

Plants glabrous.

Leaves elongate-lanceolate, long-attenuate to apex. *P. salicifolia.*

Leaves lance-elliptic.

Peduncle about 1 cm. long.

Spikes short..... *P. Vidaliana.*

Spikes 90 mm. long..... *P. exiguispica.*

Spikes 100–150 mm. long..... *P. spiculata.*

Spikes 150–200 mm. long..... *P. oxyphylla.*

Peduncle 2 cm. long..... *P. montana.*

Peduncle 2–3 cm. long..... *P. obruenda.*

Leaves elliptic.

Peduncle 5 cm. long..... *P. variculata.*

Peduncle 1 cm. long..... *P. puberulibacca.*

Plants velvety..... *P. dasystachya.*

Plants crisp-pubescent.

Spikes with pseudo-pedicels..... *P. crusculibacca.*

Spikes without pseudo-pedicels..... *P. leuconeura.*

Plants villous..... *P. tricolor.*

E. Leaves 2.5–4 cm. long.

H. Leaves palmately nerved.

Leaf base acute.

Leaves 5–7-nerved.

Leaves at most ciliate or ciliate-lined.

Leaves drying thick.

Spikes short..... *P. hamiltonianifolia.*

Spikes long..... *P. induratifolia.*

Leaves drying rather thin.
Spikes 70 mm. long ..... *P. megalepis.*
Spikes about 40 mm. long.
Leaves suborbicular ..... *P. furcata.*
Leaves subelliptic ..... *P. microlepis.*
Leaves subobovate ..... *P. debilipes.*
Leaves ovate ..... *P. Obex.*
Leaves crisp-pubescent.
Leaves subovate-elliptic ..... *P. famelica.*
Leaves round-ovate ..... *P. nigricans.*
Leaves 3–nerved.
Plants glabrous.
Stem angled ..... *P. alatiscapa.*
Stem not angled.
Spikes about 50 mm. long.
Leaves oblanceolate ..... *P. fortipes.*
Leaves lance-oblong ..... *P. carrapana.*
Spikes long ..... *P. chanchamayana.*
Plants subpuberulent ..... *P. caducifolia.*
Plants crisp-pubescent.
Leaves elliptic-subobovate ..... *P. hyporhoda.*
Leaves lance-ovate ..... *P. trinervis.*
Leaf base obtuse or cordulate.
Plants appressed-pubescent ..... *P. carpapatana.*
Plants crisp-pubescent ..... *P. chalhuapuquiana.*
Plants subpuberulent ..... *P. Maransara.*
Plants glabrous.
Plant erect, pellucid ..... *P. pellucida.*
Plant repent ..... *P. pseudo-furcata.*
H. Leaves pinnately nerved.
Plants glabrous ..... *P. ventricosicarpa.*
Plants villous ..... *P. yananoensis.*
Plants transiently silky ..... *P. percalvescens.*
E. Leaves 1–2.5 cm. long.
Leaves pinnately nerved, acute-based.

Plants glabrous.
Leaves obovate ..... *P. parva.*
Leaves elliptic-obovate ..... *P. roqueana.*
Leaves oblanceolate ..... *P. cusilluyocana.*
Plants subvillous ..... *P. pilifera.*
Leaves palmately nerved.
Leaves acute-based.
Plants glabrous.
Leaves lanceolate.
Leaves acute ..... *P. aerea.*
Leaves obtuse ..... *P. mansericheana.*
Leaves subrhombic ..... *P. rhombeifolia.*
Plants crisp-pubescent ..... *P. pumila.*
Plants subvillous ..... *P. Drapeta.*
Leaves cordate or round-based.
Plants glabrous ..... *P. antoniana.*
Plants somewhat crisp-villous ..... *P. pontina.*
Plants crisp-pubescent ..... *P. scandens.*

E. Leaves scarcely 1 cm. long, if somewhat longer the blades narrow.

I. Leaves nearly as broad as long.
Leaves subreniform.
Plants crisp-pubescent, very delicate, repent .. *P. scandens.*
Plants soft-hirtellous ..... *P. perhispidula.*
Leaves round-ovate ..... *P. longipila.*
Leaves orbicular.
Leaves varying into elliptic.
Plants glabrous ..... *P. multiformis.*
Plants finely subvillous.
Peduncle 5–10 mm. long ..... *P. pleiomorpha.*
Peduncle very short ..... *P. pichisensis.*
Plants crisp-pubescent.
Peduncle very short ..... *P. polymorpha.*
Peduncle 5 mm. long ..... *P. vana.*
Leaves uniform.

Plants glabrous ..... *P. fuscispica.*
Plants somewhat pilose ..... *P. andinacea.*
Plants crisp-pubescent ..... *P. rotundifolia.*
Leaves round-obcordate.
Plants puberulent ..... *P. cordulilimba.*
Plants glabrous ..... *P. obcordatifolia.*
Leaves obliquely elliptic ..... *P. pruinosifolia.*
I. Leaves subelongate-ovate.
Leaves scarcely more than 1-nerved.
Plants transiently silky ..... *P. subsericata.*
Plants at most obscurely puberulent.
Leaves very variable ..... *P. heterophylla.*
Leaves uniform ..... *P. playapampana.*
Leaves 5-nerved ..... *P. modicilimba.*
Leaves obscurely pinnately nerved.
Leaves half as broad as long ..... *P. non-hispidula.*
Leaves narrower ..... *P. plicatifolia.*

B. Leaves opposite or whorled.

J. Leaves 6–10 cm. or more long, glabrous.
Leaves 3-nerved ..... *P. heterostachya.*
Leaves 5-nerved ..... *P. tetragona.*
Leaves 7–9-nerved.
Leaves lance-elliptic ..... *P. septemnervis.*
Leaves elliptic ..... *P. undeninervia.*
Leaves oblanceolate ..... *P. deceptrix.*
J. Leaves 4–6 cm. long.
Plants glabrous.
Drying purple.
Leaves narrowly lanceolate ..... *P. rubea.*
Leaves lance-elliptic or ovate ..... *P. rubens.*
Not drying purple.
Leaves 5-nerved ..... *P. puteolata.*
Leaves 7-nerved ..... *P. san-roqueana.*
Plants locally puberulent.
Leaves lance-elliptic ..... *P. Pavoniana.*
Leaves subovate-elliptic ..... *P. mishuyacana.*

Plants generally puberulent ..... *P. inaequilatera.*
Plants with the stem pubescent.
Leaves glabrous ..... *P. exilamenta.*
Leaves pubescent above on the nerves, acuminate.
P. pubescentinervis.
Leaves generally pubescent.
Upper leaves reduced ..... *P. pampalcana.*
Upper leaves not smaller ..... *P. casapiana.*

J. Leaves 2.5–4 cm. long.
Leaves commonly opposite.
Leaves papillate-puberulent, acute at the base.
P. ollantaitambona.
Leaves pubescent.
Upper leaves reduced ..... *P. confertispica.*
Upper leaves scarcely smaller.
Plant crisp-pubescent ..... *P. apurimacana.*
Plant subvillous-tomentose ..... *P. cotoneasterifolia.*
Plant hirsute ..... *P. Gayi.*
Leaves mostly whorled.
Plants glabrous.
Leaves drying thin and green ..... *P. profissa.*
Leaves drying firm.
Leaves purple ..... *P. rubescens.*
Leaves bronzed, finely wrinkled, obtuse-acuminate.
P. asterophylla.
Leaves scarcely purpling or bronzed.
Leaves revolute and hard ..... *P. sclerophylla.*
Leaves scarcely revolute.
Leaves 3-nerved ..... *P. flabilis.*
Leaves 5-nerved ..... *P. ficta.*
Plants more or less puberulent.
Leaves lance-ovate ..... *P. flavamenta.*
Leaves broadly lanceolate ..... *P. glareosa.*
Leaves narrowly lanceolate ..... *P. tetrica.*
Leaves obovate to subspatulate ..... *P. inaequalifolia.*
Plants crisp-pubescent.

Leaves rhombic-spatulate..... *P. Mathewsiana.*
Leaves elliptic..... *P. praeruptorum.*
Stem subvillous..... *P. subvillicaulis.*
J. Leaves 1–2.5 cm. long.
Leaves opposite.
Plants glabrous.
Leaves not papillate..... *P. Herrerae.*
Leaves minutely papillate..... *P. gucayana.*
Plants hairy..... *P. villicaulis.*
Leaves commonly whorled.
K. Leaves widened upwards.
Leaves uniform, glabrous.
Spikes short, apiculate..... *P. obcordata.*
Spikes not apiculate.
Spikes short..... *P. quadricoma.*
Spikes 25 mm. long..... *P. estrellana.*
Spikes 50 mm. long..... *P. san-buenaventurana.*
Spikes 60–80 mm. long.
Leaves coriaceous, revolute..... *P. palcana.*
Leaves scarcely revolute, granular, emarginulate. *P. pillahuatana.*
Spikes over 100 mm. long.
Leaves 12 cm. long..... *P. santa-cruzana.*
Leaves becoming twice as long..... *P. Pakipski.*
Leaves partly subspatulate.
Plants glabrous.
Petiole scarcely 2 mm. long; leaves emarginate. *P. subdichotoma.*
Petiole longer, winged..... *P. huallagana.*
Plants velvety..... *P. anisophylla.*
Plants hirsute..... *P. Klotzschiana.*
K. Leaves not widened upwards.
Leaves lanceolate.
Leaves not rhombic.
Plants tomentulose..... *P. variifolia.*
Plants somewhat puberulent.

Leaves acute ..... *P. subcalvescens.*
Leaves obtuse ..... *P. pongoana.*
Leaves rhombic ..... *P. rhombea.*
Leaves elliptic.
Leaves subrhombic ..... *P. puberulipes.*
Leaves not rhombic.
Plants glabrous or slightly papillate.
Leaves 1–1.5 cm. long.
Leaves plicate ..... *P. cushiana.*
Leaves flat ..... *P. rhodophylla.*
Leaves 1.5–2.5 cm. long.
Spikes solitary ..... *P. concava.*
Spikes numerous ..... *P. congesta.*
Plants puberulent.
Leaves scarcely 1 cm. wide ..... *P. huanucoana.*
Leaves 1.5 cm. wide ..... *P. viracochana.*
Plants soft-hairy ..... *P. calvescens.*
Plants stiff-hirsute ..... *P. crinigera.*
Plants villous.
Leaves acute ..... *P. congestispica.*
Leaves obtuse ..... *P. caniana.*
Leaves lance-elliptic ..... *P. guayrapurana.*
Leaves lance-oblong ..... *P. lanosa.*
Leaves subrhombic-ovate ..... *P. Smithii.*

J. Leaves scarcely over 1 cm. long, narrow if slightly longer.
Leaves opposite, orbicular ..... *P. cyclophylla.*
Leaves mostly whorled.
L. Leaves round-elliptic or subovate-elliptic.
Leaves glabrous.
Spikes 60 mm. long ..... *P. Ppucu-ppucu.*
Spikes twice as long.
Leaves not waxen ..... *P. marcapatana.*
Leaves drying waxen-translucent ..... *P. cerea.*
Leaves pubescent.
Stem exfoliating, glabrous ..... *P. scabiosa.*
Stem transiently hirtellous ..... *P. Diehliana.*
Stem crisp-hairy ..... *P. rosea.*

Stem yellow-tomentulose ..... *P. chrysotricha.*

L. Leaves round, at most slightly puberulent.

Peduncle 3–4 cm. long ..... *P. trichopus.*

Peduncle 1–2 cm. long; leaves rounded at the end.

Spikes 10 mm. long, 2 mm. thick..... *P. subandina.*

Spikes 10–15 mm. long, 1 mm. thick ..... *P. andicola.*

Peduncle 1 cm. long.

Leaves round at the end ..... *P. filiformis.*

Leaves subtruncate..... *P. subandina.*

Peduncle very short ..... *P. Claudii.*

L. Leaves obovate.

Plants glabrous ..... *P. muscigaudens.*

Plants somewhat puberulent ..... *P. pseudo-galapagensis.*

L. Leaves subelongate-obovate.

Leaves scarcely rhombic or rugose, at most slightly puberulent.

Leaves rounded at the apex.

Leaves 3 or 4 at a node.

Leaves obscurely pinnate-nerved, acute at base. *P. dendroides.*

Leaves 1-nerved..... *P. Pearcei.*

Leaves about 5 at a node, 1-nerved..... *P. Gilberti.*

Leaves truncate-emarginulate..... *P. bracteispica.*

Leaves subrhombic, rugulose.. ..... *P. rugatifolia.*

L. Leaves elliptic.

Leaves subrhombic.

Spikes short; somewhat pubescent.

Pubescence subvillous ..... *P. huantana.*

Pubescence short.

Leaves little longer than broad, obtuse-acuminate. *P. nigro-oculata.*

Leaves more elongate.

Peduncle short..... *P. rhombeo-elliptica.*

Peduncle 2 cm. long..... *P. quadratifolia.*

Spikes subelongate.

Plants repent-assurgent..... *P. quaerata.*

Plants erect.

Plants at most papillate ..... *P. milvifolia.*
Plants somewhat crisp-hirtellous ..... *P. quaesita.*
Leaves scarcely subrhombic.
Plants glabrous.
Stem very thick at the base; leaves elliptic.
P. crassulaecaulis.
Stem not greatly thickened.
Leaves round-elliptic, subobtuse at the base.
P. quispicanchiana.
Leaves twice as long as broad ..... *P. arctebaccata.*
Plants papillate.
Papillae not bristly ..... *P. micromamillata.*
Papillae bristly ..... *P. naevifolia.*
Plants puberulent.
Leaves short-elliptic ..... *P. chillonensis.*
Leaves more elongated.
Leaves obscurely pinnately nerved.
Stem very slender ..... *P. brachyiula.*
Stem 2–3 mm. thick ..... *P. ceapanana.*
Leaves scarcely more than 1-nerved.
Stem 5 mm. thick below ..... *P. distractiflora.*
Stem slender ..... *P. sangabanensis.*
L. Leaves oblong or linear.
Upper leaves elongate.
Lower leaves barely 5 mm. long ..... *P. atocongona.*
Leaves larger.
Spikes and peduncles short.
Stem very leafy ..... *P. foliata.*
Internodes long ..... *P. seposita.*
Spikes 60–150 mm. long ..... *P. longispica.*
Upper leaves scarcely elongated.
Leaves subconduplicate ..... *P. trullaefolia.*
Leaves not deeply concave.
Stem slender.
Peduncle 5 mm. long ..... *P. dendromorphis.*
Peduncle twice as long ..... *P. agapatensis.*
Stem 4–5 mm. thick ..... *P. arcuatispica.*

Peperomia acuminata R. & P. Fl. 1: 32. *pl. 51.* 1798. *Piper acuminatum* Pers. Syn. 1: 35. 1805, non *P. acuminatum* L. 1753. *Piper nemorosum* Vahl, Enum. 1: 341. 1805. *Peperomia Ruiziana* C. DC. Candollea 1: 337. 1923.

A rather large, glabrous, ascending herb; leaves alternate, oblong-obovate, acuminate, acute-based, 6–9 cm. long, 2.5–3.5 cm. wide, pinnately nerved; petiole 1 cm. long; spikes terminal, 4 mm. thick, 100 mm. long or more; peduncle short.

Huánuco: Muña, Pillao, and Macosa, *Ruiz & Pavón*, type.— San Martín: San Roque, *Williams 7428.*

Peperomia acutifolia C. DC. Journ. Bot. 4: 142. 1866.

A glabrous, moderate-sized herb; leaves alternate, lanceolate, acutely protracted, long-cuneate, 15 cm. long, 3–4 cm. wide, pinnately nerved; petiole 3 cm. long or more; spikes 2 or several in a terminal panicle, filiform, 80 mm. long; peduncle 10 mm. long; bracts round-peltate; berries narrowly oblong, obliquely sharp-scutulate, with central stigma. Neg. 8311.

San Martín: Tarapoto, *Spruce 4094*, type. San Roque, 1,350–1,500 meters, *Williams 7428.* "Afasi quihua."

Peperomia aerea Trelease, sp. nov.

Herba gracilis rhizomatosa repens glabra, ramis brevibus adscendentibus, caule 1 mm. crasso; folia alterna lanceolata subacuminata basi acutiuscula 12–30 mm. longa 6–12 mm. lata coriacea opaca 3-nervia vel obscure 5-nervia anguste revoluta, subtus concoloria granulosa, petiolo 3 mm. longo; spicae terminales 50 mm. longae 1 mm. crassae, floribus densis vel subzonulatis, pedunculo 10 mm. longo; bracteae rotundo-peltatae.

Junín: Chanchamayo Valley, 1,800 meters, *Carlos Schunke 494* (herb. Field Mus. No. 571,552, type), *187.*

Peperomia agapatensis C. DC. in DC. Prodr. 16, pt. 1: 455. 1869.

A puberulent, suffrutescent, erect, branching herb; leaves commonly 4 at a node, oblong or somewhat enlarged upward, obtuse, subacute at the base, 8–15 mm. long, 3–4 mm. wide, obscurely pinnate-nerved, yellowish beneath; petiole scarcely 1 mm. long; spikes terminal, 50 mm. long, 1 mm. thick; peduncle 10–15 mm. long; bracts round-peltate; berries round, pointed; stigma apical. Neg. 8304.

Type from Agapata, *Lechler 1934*.—Junín: La Merced, Schunke Hacienda, *Killip & Smith 24576*.

Peperomia ainana Trelease, sp. nov.

Herba modice alta simplex assurgens glabra, caule 2–4 mm. crasso; folia alterna ovata acuminata, basi rotundata vel subtruncata atque ad petiolum acute contracta, 8–10 cm. longa 5–7 cm. lata, multiplinervia nervis basilaribus utroque latere 2–3, majoribus ut costa 1–2-ramosis, statu sicco tenuia viridia, petiolo 3–8 cm. longo gracili; spicae sympodiales 40 mm. longae 2 mm. crassae, pedunculo aequilongo; bracteae rotundo-peltatae; ovarium globosum mucronatum, stigmate obliquo.

Ayacucho: Aina, near Río Apurímac, 750–1,000 meters, *Killip & Smith 22766* (type in U. S. Nat. Herb.; dupl. in herb. Field Mus.). —Junín: La Merced, *Killip & Smith 23725*.

A terrestrial plant; flower spikes white.

Peperomia alata R. & P. Fl. 1: 31. *pl. 48*. 1798. *Piper alatum* Vahl, Enum. 1: 342. 1805.

A moderate-sized, glabrous, assurgent herb; stem alately angled below the petiole margins; leaves alternate, lance-elliptic, subacuminate, 4–7 cm. long, 2–2.5 cm. wide, acute-based, 5-nerved with the inner nerves somewhat confluent; petiole 5–10 mm. long, clasping-decurrent; spikes terminal and from the upper axils, 70 mm. long, 2 mm. thick; peduncle 10 mm. long; bracts round-peltate.

Huánuco: Posuso, *Ruiz & Pavón*, type; at 600 meters, on mossy rocks, *4687, 4680*.—Ayacucho: Aina, *Killip & Smith 22830, 22769*. —Junín: Balsapuerto, *Killip & Smith 28428*. San Nicolás to Azupizu, *Killip & Smith 24088*. Puerto Bermúdez, *Killip & Smith 26465*.

Peperomia alatiscapa Trelease, sp. nov.

Planta epiphytica mediocris subsimplex glabra; folia alterna vel suprema ternata elliptico-subobovata obtuse acuminata basi acuta 2.5–4 cm. longa 1.5–2.5 cm. lata 3–5-nervia, costa obscure ramosa, in sicco opaco-olivacea et opaca, statu vivo obscure rosea, petiolo 10 mm. longo in costulas caulinas decurrente; spicae terminales 70 mm. longae 2 mm. crassae densiflorae, pedunculo 10 mm. longo; bracteae rotundo-peltatae.

Junín: Eneñas, Pichis Trail, 1,600–1,900 meters, *Killip & Smith 25623* (type in U. S. Nat. Herb.).

Peperomia alismaefolia Presl, Epim. Bot. 222. 1845.

A rhizomatous herb; stem short, toothed from fallen leaf bases; leaves few, alternate, elliptic-ovate, obtuse at both ends, 4–6 cm. long, 2.5–4 cm. wide, 5-nerved, pubescent above and ciliate; petiole 4–5 cm. long, glabrous; spikes from between the leaves, 20 mm. long, 2 mm. thick; bracts round-peltate, ciliate; ovary subglobose, umbilicate; stigma apical.

Type from mountains of Peru.

Peperomia andicola Dahlst. Svensk. Vet. Akad. Handl. 33, pt. 2: 182. *pl. 7.* 1900.

A delicate, repent, short-branched herb, at least transiently puberulent; stem filiform; leaves commonly 3 or 4 at a node, round-obovate, subtruncate, cuneate, 5 mm. wide, 3-nerved; petiole very short; spikes terminal, 10–15 mm. long, 1 mm. thick; peduncle of the same length; bracts round-peltate; berries ovoid, pointed, with pseudo-cupule; stigma apical.

Junín: Tarma, *Philippi,* type.—Loreto: Yapas, 1,350–1,600 meters, *Killip & Smith 25462*(?).

Peperomia andinacea C. DC. Journ. Bot. 4: 134. 1866.

A delicate, repent herb, glabrous except for a few hairs on the upper leaf surface; leaves alternate, orbicular, 2–3 mm. in diameter, obscurely 3-nerved; petiole 1–2 mm. long; spikes terminal, 10 mm. long, 1 mm. thick; peduncle 2 mm. long.

Puno: Sangabán, *Lechler 2410,* type.

Peperomia anisophylla C. DC. Bot. Jahrb. 40: 266. 1908.

An erect, succulent herb; stem 2–3 mm. thick, with short internodes; leaves about 3 at a node, reflexed, obovate, subtruncate or very obtuse, subcuneate at the base, 10–17 mm. long, 5–10 mm. wide, velvety on both sides, 5-nerved; petiole very short; spikes terminal and from the upper axils, 45 mm. long, 1 mm. thick; peduncle scarcely 5 mm. long; bracts round-peltate; ovary ovoid; stigma subapical.

Huánuco: Between Matucana and Arinia, 2,300 meters, *Weberbauer 72,* type.

Peperomia antoniana Trelease, sp. nov.

Herba parvula subrepens glabra terrestris; folia alterna rotundo-ovata obtusissima basi cordata 15–20 mm. longa et lata 5-nervia in sicco viridia et pellucida, petiolo 5–20 mm. longo; spicae in sicco

filiformes, 10–15 mm. longae 3 mm. crassae; bracteae rotundo-peltatae.

Loreto: San Antonio, Río Itaya, 110 meters, *Killip & Smith 29498* (type in U. S. Nat. Herb.).

Peperomia apurimacana Trelease, sp. nov.

Plata epiphytica alta succulenta ramosa, caule 2–4 mm. crasso crispo-floccoso; folia opposita subrhombeo-elliptica utrinque acuta, foliis inferioribus reductis et obovato-truncatis, 3 cm. longa et 1 cm. lata vel usque ad 5 cm. longa atque 3 cm. lata, trinervia, subpersistente crispo-pubescentia, in sicco tenuia, petiolo 5–10 mm. vel ad 15 mm. longo crispo-pubescente; spicae terminales et axillares filiformes 30–40 mm. longae sublaxiflorae floribus pseudopedicellis brevibus stipatis, pedunculo 10–15 mm. longo translucente minute pubescente; bracteae rotundo-peltatae.

Ayacucho: Carrapa, 1,500 meters, *Killip & Smith 22355.*

Peperomia arborigaudens Trelease, sp. nov.

Planta epiphytica repenti-pendula, caule gracili elongato breviter villoso; folia alterna ovata acuminata brevissime et obscure peltata, basi rotundata vel subtruncata, 4–5.5 cm. longa 3–4 cm. lata, 5–7-nervia, statu juvenili subtus tomentulosa serius sparse pilosa et glanduloso-granulosa, in sicco tenuia atque plus minusve rosea, petiolo 3–5 mm. longo laxe villoso; spicae terminales graciles 90 mm. longae, pedunculo filiformi 2 cm. longo subvilloso; bracteae minutae rotundo-peltatae.

Loreto: Yapas, Pichis Trail, 1,350–1,600 meters, *Killip & Smith 25509* (type in U. S. Nat. Herb.).

Peperomia arboriseda C. DC. Bot. Jahrb. 40: 261. 1908.

A glabrous, spreading epiphyte; stem slender, sublignescent; leaves alternate, lanceolate or the lower suborbicular, acute, round-based, 4 cm. long, 2 cm. wide, 7-nerved, the inner nerves sub-confluent below, ciliate; petiole 5 mm., or less than 15 mm., long; spikes 3 on a slender, terminal, 2-bracted stalk, slender; peduncle 5 mm. long; bracts round-peltate; berries oblong, obliquely scutulate; stigma central.

Junín: La Merced, Chanchamayo Valley, in forest, 1,000 meters, *Weberbauer 1917*, type.

Peperomia arboriseda var. **moyobambana** C. DC. Bot. Jahrb. 40: 261. 1908.

Internodes 5 cm. long; leaves 6 cm. long, 2.5 cm. wide, with densely ciliate nerves; scales 15 mm. long subtending the spikes.

San Martín: Moyobamba, *Weberbauer 4691*, type.

Peperomia arctebaccata Trelease, sp. nov.

Herba modice parva arcte radicans caespitosa dichotoma glabra, caule 2 mm. crasso firmo plus minusve furfuraceo-exfoliante; folia opposita vel ternata vel quaternata elliptica obtuse submucronata vix 10 mm. longa et 5 mm. lata opaca crassissima revoluta, subtus in sicco fusca, nervis non manifestis, petiolo 1–2 mm. longo; spicae terminales 30–50 mm. longae 2 mm. crassae densiflorae, floribus in alveolis oblongis profundis insertis, pedunculo crasso 5–10 mm. longo; bracteae minutae rotundo-peltatae; baccae numerosissimae pseudocupula brevi instructae, stigmate terminali, stylo brevi.

Junín: Chanchamayo Valley, 1,000 meters, *Carlos Schunke 471* (herb. Field Mus. No. 571,529, type), *A89*, *A86*, *386*, *372*.

Peperomia arcuatispica Trelease, sp. nov.

Herba majuscula glabra stolonifera, caule 5 mm. crasso; folia alterna oblanceolata acuta basi cuneata 16–18 cm. longa 6 cm. lata ubique pinnatinervia, in sicco tenuia viridia, petiolo 1 cm. longo lamina decurrente alato; spicae paniculatae, panicula foliis vix longiore, ramis circa 3 basi spicis 1 vel 2 et 2–4 cm. longis atque curvis basilaribus onustis apice spicas plures gerentibus, spicis 30 mm. longis 1 mm. crassis, pedunculo fere nullo; bracteae rotundo-peltatae.

Junín: San Nicolás, Pichis Trail, 1,100 meters, *Killip & Smith 25992* (type in U. S. Nat. Herb.).

Peperomia areolata Trelease, sp. nov.

Herba glabra rhizomatosa, caulibus brevibus crassis paucifoliis; folia reniformi-ovata vel rotundo-ovata apice rotundata vel subacuta vel submucronata, basi breviter aperte cordata, 6–8 cm. longa, 7–8 cm. lata 7-nervia in sicco venulose pallido-areolata, petiolo 8–12 cm. longo; inflorescentia non visa.

Loreto: Balsapuerto, 150–350 meters, *Killip & Smith 28660* (type in U. S. Nat. Herb.). Huallaga, *Weberbauer 6807*.

Peperomia artatiflora Trelease, sp. nov.

Herba modice alta parvifolia succulenta, caule velutino inferne ad 4–5 mm. crasso in sicco lucido-stramineo; folia 3–4-nata linearia ad subobovato-elliptica obtusa vel subacuta basi acutiuscula 6–15

mm. longa 2–3 mm. lata, utrinque papilloso-subpuberula, 1-nervia, petiolo 1 mm. longo; spicae terminales et ex axillis superioribus, 40 mm. longae 1 mm. crassae densiflorae, pedunculo 10 mm. longo glabrato; bracteae rotundo-peltatae brunneae.

Junín: Palca, *Stevens 47* (type).

Peperomia asterophylla Trelease, sp. nov.

Herba mediocris stolonifera suberecta caespitosa, caule 2–3 mm. crasso ad nodos velutino; folia ad nodum 3–5 elliptica obtuse acuminata basi acuta 2–3 cm. longa 1.5–2.5 cm. lata obscure trinervia, in sicco opaca et minute rugosa glabra vel fere glabra, petiolo 3–4 mm. longo brunneo-velutino; spicae axillares et terminales 40–80 mm. longae 2 mm. crassae, pedunculo 10–15 mm. longo glabrato; bracteae rotundo-peltatae.

Loreto: Santa Rosa, 135 meters, *Killip & Smith 28909* (type in U. S. Nat. Herb.). Sapote Yacu, Santa Rosa, 200 meters, *Williams 4901*. San Antonio, Alto Río Itaya, 145 meters, *Williams 3479*.

Peperomia atocongona Trelease, sp. nov.

Herba modice parvula suberecta caespitosa, caule 1–3 mm. crasso plus minusve ramoso minute puberulo; folia ad nodum 3–6 elliptica vel subobovata obtusa basi acuta 4–6 mm. longa 2–3 mm. lata, superioribus ad 10–20 mm. longis et 5 mm. latis, subtus obscure pinnatinervia atque granulosa, petiolo vix 1 mm. longo; spicae terminales et ex axillis superioribus 15 mm. longae 1 mm. crassae densiflorae, pedunculo 5 mm. longo; bracteae rotundo-peltatae.

Lima: Atocongo, 250–500 meters, *F. W. Pennell 14752* (type in herb. Acad. Nat. Sci. Phila.).

Peperomia balsapuertana Trelease, sp. nov.

Herba epiphytica majuscula fere acaulescens glabra; folia alterna elliptico-oblanceolata obtusa ad acute subacuminata basi cuneata 17–25 cm. longa 7–10 cm. lata ubique pinnatinervia, in sicco tenuia, petiolo 5–6 cm. longo; inflorescentia non visa.

Loreto: Balsapuerto, 150–350 meters, *Killip & Smith 28632* (type in U. S. Nat. Herb.).

Peperomia basellaefolia HBK. Nov. Gen. & Sp. 1: 66. 1815. *Piper basellaefolium* Poir. Encycl. Suppl. 4: 468. 1816.

A glabrous, assurgent, succulent herb; stem 3 mm. thick; leaves alternate, subelliptic, acuminate, acute at the base, 3–5 cm. long,

3–4 cm. wide, ciliate, pinnately few-nerved; petiole 5–10 mm. long; spikes terminal, when young 25 mm. long, 2 mm. thick, the peduncle 1 cm. long.

Type from Peru, without definite locality, *Mathews 1838*. Ecuador.

Peperomia bermudezana Trelease, sp. nov.

Herba glabra repenti-assurgens arboricola, caule 2–3 mm. crasso; folia alterna elliptico-suboblonga acuminata basi acuta 7–9 cm. longa 3–4 cm. lata trinervia vel obscure 5-nervia costa obscure ramosa, in sicco tenuia opaca, subtus plus minusve pallida, petiolo gracili 1–2 cm. longo; spicae sympodiales interdum in ramis brevibus 2-bracteatis insertae, filiformes, 70 mm. longae, pedunculo 5–10 mm. longo; bracteae rotundo-peltatae.

Junín: Puerto Bermúdez, 375 meters, *Killip & Smith 26451* (type in U. S. Nat. Herb.).

Peperomia binispica Trelease, sp. nov.

Herba mediocris subsimplex glabra, caule 2 vel ad basin 5 mm. crasso; folia alterna lanceolata 15 cm. longa 4 cm. lata vel majora, utrinque acuta, apice interdum obtusa, pinnatinervia, petiolo vix 10 mm. longo vel fere nullo; spicae axillares vulgo binae et pedunculos graciles ad 10 cm. longos terminantes, 100–140 mm. longae 2 mm. crassae densiflorae, pedunculo 15–25 mm. longo filiformi; bracteae rotundo-peltatae; baccae rotundato-ovoideae oblique rostro crasso terminatae, stigmate ad basin rostri inserto.

Junín: Chanchamayo Valley, 1,200 meters, *Carlos Schunke 358* (herb. Field Mus. No. 571,412, type), *A84*.

Peperomia blepharipus Trelease, sp. nov.

Planta modice alta epiphytica erecta subsimplex, petiolis crispo-ciliatis et lineis decurrentibus exceptis glabra, caule 2–3 mm. crasso; folia alterna lanceolata utrinque acuta 8–10 cm. longa 2–3.5 cm. lata fere e basi 3–5-nervia costa superne obscure ramosa, in sicco tenuia opaca, petiolo 5–10 vel ad 30 mm. longo amplexicauli decurrente; spicae terminales vel sympodiales 60 mm. longae 2 mm. crassae, pedunculo 2 cm. longo; bracteae rotundo-peltatae.

Loreto: Yurimaguas, 135 meters, *Killip & Smith 28030* (type in U. S. Nat. Herb.).

Peperomia blepharipus var. **binispica** Trelease, var. nov.

Planta gracilior, spicis binis ramulum gracili-bracteatum terminantibus 60 mm. longis 1 mm. crassis.

Loreto: San Antonio, Alto Río Itaya, 145 meters, *Williams 3435* (type in herb. Field Mus., No. 618,141).

Peperomia blepharipus var. **iquitosensis** Trelease, var. nov.

Planta validior, caule 2–4 mm. crasso; folia elliptica vel subovata 7–9 cm. longa 3–5.5 cm. lata; spicae solitariae.

Loreto: Iquitos, 100 meters, *Killip & Smith 27462.*

Peperomia brachyiula Trelease, sp. nov.

Herba erecta modice parva dense caespitosa breviter ramosa, caule gracili 1–2 mm. crasso papilloso-velutino; folia ad nodum 4–6 patentia elliptica vel rotundato-elliptica obtusa vel subretusa basi plus minusve acuta parva, 6–9 mm. longa, 2–4 mm. lata, suprema magis rotundata, modice tenuia, obscure pinnatinervia, primo utrinque dense puberula, petiolo vix 2 mm. longo puberulo; spicae ramos breves dense foliatos terminantes vix 35 mm. longae 1 mm. crassae laxiflorae, pedunculo 5 mm. longo; bracteae rotundo-peltatae; ovaria inter costulas anastomosantes immersa; baccae rotundato-ovoideae oblique mucronulato-truncatae; stigma anterius.

Lima: Matucana, steep southern shale slope, in large clumps, 2,400 meters, *Macbride 129* (herb. Field Mus. No. 516,662, type).

Peperomia bracteispica Trelease, sp. nov.

Herba parva repenti-assurgens glabra epiphytica, caule 1 mm. crasso; folia vulgo ternata obovata truncato-emarginulata basi cuneata 9–11 mm. longa 5–6 mm. lata obscurissime trinervia, petiolo filiformi 3–4 mm. longo; spicae terminales vix 40 mm. longae et 1 mm. crassae, floribus sublaxe dispositis, pedunculo 5 mm. longo folio unico 15 mm. supra verticillos supremos inserto fulcrato; bracteae rotundo-peltatae; rhachis pseudopedicellis onusta.

Huánuco: Huacachi, near Muña, 1,950 meters, *4171a* (type in herb. Field Mus. No. 551,173).

Peperomia caducifolia Trelease, sp. nov.

Herba alta repenti-assurgens, caulibus carnosissimis ramosis puberulis, internodiis brevibus; folia alterna, foliis ramorum sterilium parvis et suborbicularibus, ceteris ellipticis obtuse acuminatis basi subacutis 3 cm. longis 1.5–2 cm. latis, superioribus minoribus, caducis, trinerviis, minute puberulis, petiolo 5–10 mm. longo glabrescente; spicae plures terminales et ex axillis nudis approximatis brevem pseudopedunculum efformantibus nascentes 30 mm. longae, floribus laxiuscule insertis, pedunculo 5 mm. longo; bracteae rotundo-peltatae.

Ayacucho: Carrapa, 3,000 meters, *Killip & Smith 22270* (type in U. S. Nat. Herb.).

Peperomia calvescens Trelease, sp. nov.

Herba minuscula stolonifera succulenta, caulibus plus minusve caespitosis erectis subgracilibus 2 mm. crassis primum sparse molliter pilosis cito epidermi furfuraceo-exfoliante glabrescentibus vel ad nodos persistente pilosis; folia 3–4-nata lanceolato-elliptica utrinque acuta trinervia parva 16 mm. longa 8 mm. lata supra ad nervos plus minusve persistente crispo-pubescentia, subtus glabra et epidermi exfoliato albida, petiolo brevi 2 mm, longo glabro; spicae terminales 60 mm. longae 1 mm. crassae, floribus laxiuscule insertis, pedunculo filiformi 2 mm. longo glabro; bracteae rotundo-peltatae; ovarium impressum ovoideum, stigmate subapicali, rhachi pseudopedicellis brevibus onusta.

Huánuco: Cueva Grande near Posuso, 1,050 meters, sunny clay banks, *Macbride 4800* (herb. Field Mus. No. 535,834, type).

Peperomia caniana Trelease, sp. nov.

Herba modice parva repenti-assurgens, caule 2–4 mm. crasso crispo-villoso; folia opposita orbicularia, superiora late ovata, utrinque obtusa vel rotundata, inferiora submucronata, minuscula, 12–25 mm. longa 12–20 mm. lata, trinervia arctiuscule adpresso-pilosa vel supra glabrescentia, petiolo vix 5 mm. longo crispo-piloso; spicae terminales subumbellatae 60 mm. longae 1 mm. crassae laxiflorae, pedunculo 1.5–2 cm. longo laxe piloso; bracteae rotundo-peltatae; baccae in rhachi immersae globulosae ovoideae obtusae, stigmate subapicali.

Huánuco: Cani, near Mito, 2,550 meters, *Macbride 3415* (herb. Field Mus. No. 534,486, type).

Peperomia carpapatana Trelease, sp. nov.

Herba majuscula ramosa, caule 2–5 mm. crasso praesertim superne dense luteo-intertexto-piloso; folia alterna rotundo-ovata apice rotundata et subabrupte obtuso-acuminata, basi rotundata vel abrupte subacuta, 2–4 cm. longa 2–3.5 cm. lata, obscure 3–5-nervia subtus adpresso-pilosa et concolori-granulosa in sicco opaca, petiolo 5–10 mm. longo adpresso-piloso; spicae ad axillas aggregatae graciles 50–150 mm. longae, floribus sublaxe insertis, pedunculo gracili 10–15 mm. longo plus minusve adpresso-piloso; bracteae rotundo-peltatae; baccae parvae globosae apice mucronatae, stigmate subapicali.

Junín: Carpapata, 2,700–3,200 meters, *Killip & Smith 24438* (U. S. Nat. Herb., type), *24393*.

Peperomia carrapana Trelease, sp. nov.

Planta parva epiphytica rhizomatoso-adscendens glabra, caule 1–2 mm. crasso; folia alterna lanceolata vel lanceolato-oblonga subobtusa vel attenuata, basi subacuta, 2–4 cm. longa, 1–1.5 cm. lata, obscure trinervia, in sicco opaca tenuia aliquanto crispo-revoluta, petiolo 5 mm. longo; spicae terminales 60 mm. longae 2 mm. crassae, floribus laxiuscule insertis, pedunculo 5 mm. longo; bracteae rotundo-peltatae.

Ayacucho; Carrapa, 1,500 meters, *Killip & Smith 23207* (U. S. Nat. Herb., type).

Peperomia casapiana C. DC. Journ. Bot. 4: 146. 1866.

A pilose herb; leaves 3 at a node, ovate, acuminate, rounded at the base, 5 cm. long, 3 cm. wide, 5-nerved, drying pellucid; petiole 8 mm. long; spikes subumbellately verticillate from the axils of the reduced upper leaves, 50 mm. long, 1 mm. thick; peduncle 15 mm. long; bracts round-peltate; berries ovoid, mucronate; stigmas subapical.

Huánuco: Casapí, *Mathews 1689*, type.

Peperomia ceapanana Trelease, sp. nov.

Herba erecta plus minusve caespitosa breviter ramosa, caule 2–3 mm. crasso dense papilloso-puberulo; folia ad nodum circa 4 adscendentia elliptica vel elliptico-obovata obtusa basi acuta parva 10 mm. longa 4 mm. lata subtenuia obscure pinnatinervia glabra, subtus glanduloso-granulosa, petiolo 1 mm. longo papilloso-puberulo; inflorescentia non visa.

Cuzco: Hacienda Ceapana, Paucartambo Valley, 3,450 meters, *F. L. Herrera 1468* (U. S. Nat. Herb., type).

Peperomia cerea Trelease, sp. nov.

Herba modice alta succulenta glabra e rupibus pendula, caule valido 5 mm. crasso, superne graciliore; folia opposita vel superne ad nodum 3–5 rotundato-elliptica utrinque rotundata circa 15 mm. longa et 10 mm. lata, superiora magis oblonga et minora, vix 10 mm. longa et 7 mm. lata, margine tenui plus minusve revoluto, in sicco cerino-translucentia, 1-nervia, petiolo brevi 1–3 mm. longo; spicae terminales 100 mm. longae et ultra 3–4 mm. crassae obscure rubrae, floribus laxiuscule insertis, pedunculo crasso 15 mm. longo; bracteae

rotundo-peltatae; ovaria in rhachi immersa acuminata, stigmate subapicali.

Huánuco: Mito, 2,700 meters, *Macbride 3330* (type in herb. Field Mus. No. 534,400).

Peperomia chachapoyasensis C. DC. in DC. Prodr. 16, pt. 1: 449. 1869. *P. umbellata* Miq. Lond. Journ. Bot. 4: 427. 1845, non Kunth.

A delicate, suberect, glabrous herb, the stem almost filiform; leaves alternately clustered at the apex, round-ovate, very obtuse, rounded at the base or obscurely cordulate, 2–2.5 cm. long, 2 cm. wide, 3- or somewhat 5-nerved; petiole 5 mm. long; spikes umbellate at the ends of slender, terminal or axillary, 2-bracted stalks 3–4 cm. long, scarcely 15 mm. long and 1 mm. thick; peduncle 5 mm. long; bracts round-peltate; berries round-ovoid, mucronate; stigma subapical. Neg. 8394.

Amazonas: Seringal Chachapoyas, *Mathews 3230*, type; *1862*.

Peperomia chalhuapuquiana Trelease, sp. nov.

Herba modice parvula erecta divaricate multiramosa, caule 2–3 mm. crasso crispo-pubescente; folia alterna ovata vel elliptico-ovata obtuse subacuminata basi vulgo rotundata 2-4 cm. longa 1.5–2.5 cm. lata ciliata, in sicco subcoriacea, subtus pallidiora minute nigro-glandulosa, petiolo 2–3 vel ad 10 mm. longo glabrato; spicae terminales et ex axillis superioribus 100 mm. longae 2 mm. crassae, floribus laxiuscule vel verticillatim insertis, pedunculo gracili vix 10 mm. longo glabro; bracteae rotundo-peltatae; baccae subglobosae mucronatae in sicco nigrae, stigmate obliquo.

Junín: Hacienda Chalhuapuquio, *Stevens 215*, type.

Peperomia chanchamayana Trelease, sp. nov.

Herba epiphytica modice parva rhizomatosa simplex glabra, caule 2 mm. crasso; folia alterna ovata vel lanceolata utrinque acuta 2.5–3.5 cm. longa 1–1.5 cm. lata trinervia vel obscure 5-nervia subtus pallidiora coriacea aliquanto crispo-revoluta, petiolo 1 cm. longo amplexicauli; spicae terminales 60–90 mm. longae 1 mm. crassae densiflorae, pseudopedicellis brevissimis, pedunculo 5 mm. longo; bracteae rotundo-peltatae; baccae subglobosae oblique apiculatae, stigmate subapicali.

Junín: Chanchamayo Valley, 1,200 meters, *Carlos Schunke 371* (herb. Field Mus. No. 571,425, type); at 1,500 meters, *Schunke 1554*.

Peperomia chartacea Trelease, sp. nov.

Herba caespitosa epiphytica modice alta glabra, caule 2–3 mm. crasso nodoso; folia alterna elliptico-subobovata acuta vel submucronata basi cuneata 6–11 cm. longa 3–6 cm. lata essentialiter palmatim 7-nervia vel nervis minoribus plus minusve circa basin confluentibus, in sicco firmo-papyracea, petiolo 5–15 mm. longo; spicae solitariae et terminales 20 mm. longae 2 mm. crassae, pedunculo gracili aequilongo; bracteae rotundo-peltatae.

Junín: Puerto Bermúdez, 375 meters, *Killip & Smith 26636* (type in U. S. Nat. Herb.).

Peperomia chillonensis Trelease, sp. nov.

Herba modice parva subsimplex(?) griseo-puberula; folia ad nodum 8 et ultra elliptica vel subobovata obtusa basi subacuta opaca obscure 3–5-nervia subrevoluta, 10 mm. longa 5 mm. lata, petiolo 1 mm. longo; spicae axillares vel ramulos brevissimos terminantes 20 mm. longae 1 mm. crassae, floribus laxiuscule insertis; bracteae rotundo-peltatae; ovarium ovoideum, stigmate subapicali.

Lima: Along Río Chillón, above Obrajillo, 2,800–3,200 meters, open rocky banks, *F. W. Pennell 14413* (herb. Field Mus. No. 558,460, type).

"A fleshy herb with greenish yellow spikes."

Peperomia chrysotricha Miq. Syst. 163. 1843.

A rather small, erect, succulent herb, yellow-puberulent or tomentulose; leaves commonly 4 at a node, subreflexed, round-obovate or elliptic, rounded at both ends, 6–10 mm. long, 3–6 mm. wide, coriaceous, 1- or obscurely 3-nerved; petiole very short; spikes terminal and from the upper axils, 20–40 mm. long; peduncle 5–10 mm. long; bracts round-peltate, pale-margined; berries globose; stigma apical.

Type from Peru, *Dombey 933*.

Peperomia ciliatifolia Trelease, sp. nov.

Herba pendula arboricola foliis sparse pilosis et rigido-ciliatis exceptis glabra, caule gracili 2 mm. crasso; folia alterna elliptica acute acuminata basi rotundata vel subacuta 11 cm. longa 5 cm. lata infra medium pinnatim paucinervia in sicco tenuia translucentia, petiolo vix 10 mm. longo; spicae sympdiales geminatae graciles 150 mm. longae, pedunculo vix 5 mm. longo; bracteae rotundo-peltatae; baccae oblongae vel subconicae scutulo acuto stigma gerente oblique truncatae.

Loreto: Balsapuerto, 150–350 meters, *Killip & Smith 28684* (type in U. S. Nat. Herb.). Yurimaguas, *Killip & Smith 27982.* Mishuyacu, near Iquitos, 100 meters, *Klug 58.*

Peperomia ciliatifolia var. **eciliatifolia** Trelease, var. nov.

Planta glabra vel sparse obscure ciliata, aliter ut in forma typica.

Loreto: Santa Rosa, 135 meters, *Killip & Smith 28723* (type in U. S. Nat. Herb.).

Peperomia ciliatifolia var. **iquitosana** Trelease, var. nov.

Magis glabrescens, spicis filiformibus.

Loreto: Iquitos, *Killip & Smith 27167* (type in U. S. Nat. Herb.).

Peperomia ciliatifolia var. **santarosana** Trelease, var. nov.

Folia minora, 6 cm. longa 3 cm. lata.

Loreto: Santa Rosa, 135 meters, *Killip & Smith 28988* (type in U. S. Nat. Herb.).

Peperomia Claudii C. DC. Ann. Cons. Jard. Bot. Genève 2: 285. 1898.

A small, cespitose, spreading epiphyte; stem filiform, puberulent; leaves 3 at a node, round-obovate, acute-based, 6 mm. long, 5 mm. wide, obscurely 3-nerved, glabrous; spikes terminal, 10 mm. long, 1 mm. thick; peduncle very short; bracts round-peltate; berries ovoid, pointed; stigma apical.

Type collected in Peru by Gay.

Peperomia coloniae Trelease, sp. nov.

Herba suffruticosa repenti-assurgens transiente sparse molliter pubescens; folia alterna lanceolata plus minusve acuminata basi obtusa 5–6 cm. longa 2.5–3 cm. lata coriacea opaca obscure pinnatinervia, subtus flavescentia, petiolo 10 mm. longo; spicae terminales, solitariae vel geminatae et pedunculos breves bibracteatos terminantes, breves.

Junín: Colonia Perené, 680 meters, *Killip & Smith 25053* (type in U. S. Nat. Herb.).

Peperomia concava R. & P. Fl. 1: 31. *pl. 46.* 1798. *Piper concavum* Vahl, Enum. 1: 350. 1805.

A moderately small, cespitose, somewhat branched, succulent herb; stem 2–3 mm. thick; leaves 2–4 at a node, elliptic, rounded at the apex, acutely subsessile, 2.5 cm. long, 1.5 cm. wide, concave, with 5 red nerves; spikes terminal, 60 mm. long, 3–4 mm. thick.

Huánuco: Chinchao and Cochero, *Ruiz & Pavón*, type.

Peperomia confertispica Trelease, sp. nov.

Herba modice parva procumbenti-assurgens obscure viridis, caule 2–3 mm. crasso, internodiis inferioribus longis sordide molliter hirsutis; folia alterna, superne in caulibus erectis opposita, rotundata vel late ovata, apice rotundata vel obtusa, basi rotundata, modice parva, 1.5–3.5 cm. longa, 1.5–3.5 cm. lata, 3–5-nervia, subtus pallidiora, utrinque sparse praesertim ad nervos adpresso-pilosa, petiolo 1–1.5 cm. longo dense piloso; spicae solitariae vel plures in axillis superioribus, juveniles vix 15 mm. longae et 1 mm. crassae densiflorae, pedunculo gracili vix 5 mm. longo piloso; bracteae rotundo-peltatae majusculae flavae.

Huánuco: Mito, 2,700 meters, *Macbride 1466* (herb. Field Mus. No. 518,142, type). "Plant dark green, sprawling on the deep humus floor of a stream thicket."

Peperomia confertispica var. **erecta** Trelease, var. nov.

Planta stolonifera erecta, caulibus crassioribus 5 mm. crassis in sicco plus minusve quadrangularibus; folia elliptica vel obovata vix 3 cm. longa et 2 cm. lata, superiora 2 cm. longa 1.5 cm. lata, subtus flavescentia, in sicco plus minusve supra rugosa vel granulosa, petiolo vix 1 cm. longo; spicae juveniles vix 25 mm. longae, pedunculo ad 5 mm. longo; bracteae primo flavescentes, brunnescentes.

Huánuco: Mito, 2,700 meters, *Macbride 1915* (herb. Field Mus. No. 518,410). "Stems and upper leaves beneath dark red. Bracts of inflorescence pale yellowish at the tip. Leaves dark green, glossy above, the lower pale beneath."

Peperomia congesta HBK. Nov. Gen. & Sp. 1: 68. *pl. 14.* 1815.

A rather large, erect, glabrous herb; stem 5 mm. thick below, with short internodes; leaves 5 to 7 at a node, round-ovate, short-acuminate, acute at the base, 1.5–2.5 cm. long, 1–2 cm wide, 1-nerved; petiole 5 mm. long; spikes numerous in the axils of congested whorls at the end of the stem so as to appear subpaniculate, 15–20 mm. long, 1 mm. thick; peduncle 5 mm. long.

Piura: Río Chuchancanao to Huancabamba, *Bonpland*, type.

Peperomia congestispica Trelease, sp. nov.

Herba mediocris assurgens plus minusve ramosa in sicco nigrescens, caule 1–4 mm. crasso dense molliter ferrugineo-hirsuto; folia ad nodum circa 5 elliptica vel subobovata subacuta basi acuta 12–20 mm. longa 6–12 mm. lata obscure trinervia breviter hirtella, supra

glabrescentia, petiolo 2–4 mm. longo ferrugineo-hirtello; spicae terminales et in axillis superioribus aggregatae, juveniles 10 mm. tantum longae et 1 mm. crassae breviter pedunculatae; bracteae rotundo-peltatae.

Junín: Huacapistana, *Stevens 62*, type.

Peperomia cordulilimba C. DC. Bot. Jahrb. 40: 261. 1908.

A small epiphyte; stem slender, velvety; leaves alternate, obovate, emarginulate, acute-based, 7 mm. in diameter, 3-nerved, puberulent beneath; petiole barely 5 mm. long, puberulent; spikes terminal, filiform, 15 mm. long; peduncle very short; bracts round-peltate; ovary obovoid; stigma oblique.

Puno: Near Tambo Frilluma, road from Sandía to Chunchusmayo, 1,000 meters, *Weberbauer 1197*, type.

Peperomia cotoneasterifolia Trelease, sp. nov.

Herba arboricola modice alta plus minusve ramosa, caule 2–3 mm. crasso primo dense adpresso-villoso; folia opposita elliptico-subovata utrinque abrupte subacuta 2–2.5 cm. longa 1.5–2 cm. lata 3- vel obscure 5-nervia supra glabrata, subtus pallidiora tomentosa, petiolo 5 mm. longo adpresso-piloso; spicae axillares 60 mm. longae 2 mm. crassae, pedunculo 10 mm. longo; bracteae rotundo-peltatae; baccae ovoideae acutiusculae, stigmate apicali.

Junín: Carpapata, 2,700–3,200 meters, *Killip & Smith 24390* (type in U. S. Nat. Herb.).

Peperomia crassulaecaulis Trelease, sp. nov.

Planta glabra succulenta suffrutescens, caulibus 3–4 mm. crassis erectis superne sparse ramosis sed e basi ad 2 cm. crassa numerosis flavescentibus, internodiis brevibus; folia ad nodum 6 elliptica emarginulata basi acuta 10 mm. longa 4-5 mm. lata in sicco dura subrevoluta opaca obscure nervata, subtus minute granulosa, petiolo 2 mm. longo; spicae terminales 140 mm. longa 4 mm. crassae, floribus laxiuscule insertis, pedunculo 15 mm. longo; bracteae rotundo-peltatae; flores in alveolis immersae; ovarium ovoideum, stigmate obliquo.

Junín: Carpapata, 2,400 meters, *Killip & Smith 24355* (type in U. S. Nat. Herb.; dupl. in herb. Field Mus.).

Peperomia crinigera Trelease, sp. nov.

Herba modice alta plus minusve ramosa assurgens, caule 2–3 mm. crasso rigide crispo-piloso; folia ad nodum circa 5 elliptico-

subobovata obtusa basi subacuta 10–16 mm. longa 6–8 mm. lata obscure trinervia crispo-hispida, petiolo 3 mm. longo crispo-pilosa; spicae terminales et ex axillis superioribus 60 mm. longae 1 mm. crassae, floribus laxiuscule insertis, pedunculo 1–2 cm. longo rigide crispo-piloso; bracteae rotundo-peltatae.

Junín: Palca, *Stevens 45*, type. Carpapata, *Killip & Smith 24449*.

Peperomia crotalophora Trelease, sp. nov.

Herba modice alta procumbens glabra in sicco viridis, caule subgracili 2–3 mm. crasso, internodiis elongatis; folia alterna rotundato-ovata ad subtriangulari-ovata acuta vel interdum obtusa vel breviter acuminata mediocria 5.5–6.5 cm. longa 4.5 cm. lata multiplinervia, nervis basilaribus 4, alteris 2 e quarto inferiore nascentibus, petiolo 3 cm. vel ad 10 cm. longo; spicae terminales solitariae pedunculos unibracteatos 2 cm. longos terminantes, 50–70 mm. longae 1 mm. crassae, floribus arcte verticillatis, verticillis antherarum magnarum dense aggregatis valde in statu juvenili conspicuis, pedunculo 15 mm. longo; bracteae rotundo-peltatae obscurae in pseudoverticillo circa 12.

Junín: Hacienda Schunke, La Merced, 1,200 meters, *Macbride 5644* (type in herb. Field Mus. No. 536,682), terrestrial, growing on forest floor.

Peperomia cruciata Trelease, sp. nov.

Herba glabra rhizomatoso-assurgens; folia alterna obovato-subspathulata obtusa basi longicuneata 6–11 cm. longa 3–4.5 cm. lata pinnatinervia, in sicco subtenuia, petiolo 2–4 cm. longo; spicae terminales 110 mm. longae 2 mm. crassae, pedunculo 8–9 cm. longo 1-bracteato; bracteae spicae rotundo-peltatae minutae; baccae oblongae graciliter rostratae, stigmate anteriore.

Junín: Chanchamayo Valley, 800 meters, *Carlos Schunke 343* (type in herb. Field Mus. No. 571,399).

Peperomia crusculibacca Trelease, sp. nov.

Herba modice alta assurgens, caule 2–4 mm. crasso crispo-pubescente; folia alterna elliptica subacuminata basi acuta 4–6 cm. longa 2–3 cm. lata 3- vel obscure 5-nervia glabra subtus nigro-glandulosa, petiolo gracili 10–15 mm. longo glabrato; spicae (terminales? et) axillares filiformes 100 mm. longae plus minusve laxiflorae, pseudopedicellis gracilibus, pedunculo 10 mm. longo gla-

brato; bracteae rotundo-peltatae; baccae subglobosae oblique mucronatae stigmate subapicali.

Junín: Huacapistana, *Stevens 90*, type; *Killip & Smith 24305*.

Peperomia crystallina R. & P. Fl. 1: 30. 1798. *Piper crystallinum* Vahl, Enum. 341. 1805.

A glabrous, branching, anise-scented succulent with 4-sided, pellucid stem; leaves alternate, oblong, papillate above, impressed-punctulate beneath; spikes slender, loosely flowered.

Lima: Lima, *Ruiz & Pavón*, type.

A very obscure species, scarcely comparable with anything known except *P. metallica*.

Peperomia cuprea Trelease, sp. nov.

Herba mediocris repens, caule 2 mm. crasso obscure evanescente plus minusve crispo-pubescente; folia alterna ovata subacuminata basi rotundata 3.5–4.5 cm. longa 2–3.5 cm. lata, 3–5 mm. supra basin peltata, opaca coriacea obscure multiplinervia anguste revoluta subtus cuprea sericeo-ciliata, petiolo 1–2.5 cm. longo molliter evanescenti-piloso; spicae axillares 55 mm. longae 3 mm. crasse arcte zonatiflorae, pedunculo 2 cm. longo glabro; bracteae parvae rotundo-peltatae in pseudoverticillo circa 20.

Junín: Chanchamayo Valley, 1,200 meters, *Carlos Schunke 354* (herb. Field Mus. No. 571,408, type), *1500*.

Peperomia cuprea var. **cordulifolia** Trelease, var. nov.

Herba mediocris repens, caule 1 mm. crasso evanescentissime plus minusve crispo-sericeo; folia alterna ovata subacuminata breviter cordata 3.5–5.5 cm. longa 2.5–3.5 cm. lata circa 5 mm. supra basin peltata, opaca coriacea subtus brunnescentia obscure multiplinervia anguste revoluta ciliata, petiolo 1–5 cm. longo sparse minute piloso; spicae ramulos graciles 1-bracteatos terminantes statu juvenili 50 mm. longae 2 mm. crassae dense zonatiflorae, pedunculo 10–15 mm. supra folium reductum longo; bracteae spicae rotundo-peltatae parvae in pseudoverticillo circa 20.

Junín: Chanchamayo Valley, 1,500 meters, *Carlos Schunke 379* (herb. Field Mus. No. 571,433, type), *1466; Killip & Smith 24839*. Eneñas, *Killip & Smith 25672*.

Peperomia currucaeformis Trelease, sp. nov.

Herba terrestris repens glabra; folia late ovata vel deltoideo-ovata obtusa basi truncato-cordata 5–6 cm. longa 4–6 cm. lata 7-nervia,

nervis intimis lateralibus con costa confluentibus, in sicco opaco-olivacea granulosa, petiolo 2–3 cm. longo; spicae ad apicem caulis sympodialis 4 cm. longi divergente geminatae et sursum curvatae 60–70 mm. longae 3 mm. crassae, pedunculo 15–20 mm. longo; bracteae rotundo-peltatae; baccae ellipsoideae rostratae, stigmate ad basin rostri inserto.

Junín: Schunke Hacienda, La Merced, 1,400–1,700 meters, *Killip & Smith 24542* (type in U. S. Nat. Herb.).

Peperomia curticaulis Trelease, sp. nov.

Herba glabra, caule brevi crasso paucifoliato; folia alterna late ovata obtusa, basi rotundata vel breviter cordata, 7–10 cm. longa 7–9 cm. lata 7-nervia, costa ut quoque nervis lateralibus ramosis, petiolo 7 cm. longo; spicae terminales 120 mm. longae 3 mm. crassae, floribus subdistantibus, pedunculo 1–2 cm. longo; bracteae rotundo-peltatae; ovarium ovoideum submucronatum, stigmate obliquo.

Junín: Cahuapanas, Río Pichis, 30 meters, *Killip & Smith 26773* (type in U. S. Nat. Herb.).

Peperomia curtipes Trelease, sp. nov.

Herba subacaulescens glabra; folia alterna rotundata subacuminata basi sinu fere clauso cordata 8–13 cm. longa 8–12 cm. lata palmatim 9-nervia vel costa interdum superne obscure ramosa, in sicco fusca, petiolo 15–20 cm. longo; spicae 50 mm. longae 2 mm. crassae vel majores, pedunculo ut videtur elongato; bracteae rotundo-peltatae; ovarium globosum, stigmate subapicali.

Junín: San Nicolás, Pichis Trail, 1,100 meters, *Killip & Smith 26019* (type in U. S. Nat. Herb.). East of Quimirí Bridge, 900 meters, *Killip & Smith 30679*.

Peperomia curtipes var. **contracta,** Trelease, var. nov.

Caulis foliatus brevissimus, foliis congestis, petiolo vix 15 cm. longo; spicae 100 mm. longae 3 mm. crassae vel majores, laxiflorae, pedunculo 15 cm. longo; bracteae rotundo-peltatae; ovarium rotundatum mucronatum, stigmate obliquo.

Junín: La Merced, Schunke Hacienda, 1,400–1,700 meters, *Killip & Smith 24726* (type in U. S. Nat. Herb.).

Peperomia cushiana Trelease, sp. nov.

Herba subparva caespitosa plus minusve furcata succulenta rubescens glabra, in sicco fusca, caule vix 2 mm. crasso, internodiis brevibus plus minusve furfuraceo-exfoliantibus; folia vulgo ternata elliptica utrinque acuta parva 10–15 mm. longa 5–7 mm. lata carno-

sissima in sicco plicata 1-nervia, petiolo brevissimo 1–2 mm. longo; spicae terminales et ex axillis superioribus 60 mm. longae 1.5 mm. crassae densiflorae, pedunculo 10–17 mm. longo; bracteae rotundo-peltatae; ovarium immersum ovoideo-acuminatum, stigmate fere apicali.

Huánuco: Cushi, 1,500 meters, *Macbride 4816* (type in herb. Field Mus. No. 535,850).

Peperomia cusilluyocana Trelease, sp. nov.

Herba stolonifera modice parva plus minusve ramosa glabra, caule 2–3 mm. crasso; folia alterna oblanceolata obtusa vel subacuminata basi cuneata circa 2.5 cm. longa et 1.5 cm. lata e dimidio inferiore submultiplinervia, ramulis costae 4, firma olivacea, petiolo vix 5 mm. longo amplexicauli; spicae terminales 30 mm. longae 1 mm. crassae densiflorae, pedunculo filiformi 10–15 mm. longo; bracteae rotundo-peltatae.

Cuzco: Pillahuata, Cerro de Cusilluyoc, 2,400 meters, *Pennell 14016* (herb. Field Mus. No. 558,254, type).

Peperomia cyclophylla Miq. in Seem. Bot. Voy. Herald 198. 1856; Dahlst. Svensk. Vet. Akad. Handl. 33, pt. 2: *pl. 5.*

A small, repent, more or less crisp-pilose herb; stem filiform; leaves opposite, orbicular, scarcely 10 mm. in diameter; petiole almost suppressed; spikes terminal, 30–65 mm. long, 1 mm. thick; peduncle 1 cm. long, 2-bracted at the middle; bracts of the spike round-peltate; berries ovoid, pointed; stigma apical. Neg. 8306.

San Martín: Tarapoto, *Spruce 4987*, type.—Junín: Puerto Lira, *Killip & Smith 26830*. Río Pinedo, *Killip & Smith 23614*.—Loreto: Puerto Arturo, *Killip & Smith 27248, 27723*.

Peperomia dasystachya Miq. Lond. Journ. Bot. 4: 416. 1845.

A moderate-sized, erect, short-velvety herb; stem 2 mm. thick; leaves alternate, elliptic or subovate, blunt-acuminate, subacute at the base 3–5 cm. long, 1–3 cm. wide, or sometimes 8 cm. long and 3.5 cm. wide, 5-nerved, subappressed-pubescent but the upper side glabrate in age; petiole barely 10 mm. long; spikes terminal, 60 mm. long, 2 mm. thick, velvety; peduncle scarcely 1 cm. long; bracts round-peltate; stigma subapical. Neg. 8376.

Amazonas: Chachapoyas, *Mathews 3229*, type.

Peperomia debilipes Trelease, sp. nov.

Planta epiphytica parva rhizomatoso-assurgens glabra, caule 2–3 mm. crasso; folia alterna oblanceolato-obovata obtusa basi

cuneata 2–3 cm. longa 1–2 cm. lata 5-nervia, in sicco opaca olivacea, in vivo subtus rubro-venosa, petiolo gracillimo 10–15 mm. longo; spicae terminales 45 mm. longae 3 mm. crassae, pedunculo filiformi 2 cm. longo, pseudopedicellis brevibus; bracteae rotundo-peltatae.

Junín: Yapas, Pichis Trail, 1,350–1,600 meters, *Killip & Smith 25545* (type in U. S. Nat. Herb.).

Peperomia debilipes var. **dimorpha** Trelease, var. nov.

Herba parva repens arboricola paullo crispo-pubescens vel glabrescens; folia alterna, ramulorum sterilium rotundo-elliptica et 5–10 mm. longa, cetera subovato-elliptica et usque ad 25 mm. longa atque 15 mm. lata, obscure 3-nervia, petiolo 5 mm. longo.

Junín: Yapas, Pichis Trail, 1,350–1,600 meters, *Killip & Smith 25591* (type in U. S. Nat. Herb.).

Peperomia deceptrix Trelease, sp. nov.

Planta glabra epiphytica, ut videtur repens et radicans ex nodis 4-foliatis florifera; folia oblanceolata acuta basi cuneata 11–12 cm. longa 3–3.5 cm. lata 7–9-nervia in sicco opaca viridia et subtenuiter papyracea, petiolo 4–9 cm. longo; spicae (delapsae) ut videtur ad apicem ramuli 5–6 cm. longi solitariae, juveniles 40 mm. longae 1 mm. crassae, pedunculo filiformi 2 cm. longo; bracteae rotundo-peltatae.

Loreto: San Antonio, 110 meters, *Killip & Smith 29325* (type in U. S. Nat. Herb.).

Peperomia deficiens Trelease, sp. nov.

Herba modice alta simplex glabra, caulibus gracilibus; folia alterna subdeltoideo-ovata basi rotundata vel subtruncata et distincte peltata vel breviter cordata et epeltata 5–5.5 cm. longa 3.5–4.5 cm. lata circa 7-nervia, in sicco tenuia subtus brunneo-granulosa, petiolo gracili 2–4 cm. longo; inflorescentia non visa.

San Martín: Alto Río Huallaga, 360–900 meters, *Williams 5758a* (herb. Field Mus. No. 624,781, type).

Peperomia dendroides Trelease, sp. nov.

Herba parva stolonifera epiphytica superne dense ramosa, caule gracili 1–2 mm. crasso primo puberulo; folia vulgo 3–4-nata elliptico-obovata vel oblongo-obovata obtusa basi acuta parva 6–9 mm. longa 3–4 mm. lata cito glabrescentia valde indistincte pinnatinervia, petiolo 1–2 mm. longo primo velutino; spicae terminales vix 25 mm. longae et 1 mm. crassae, floribus laxiuscule insertis, pedunculo vix 5 mm. longo sulcato glabrato; bracteae rotundo-peltatae; baccae

semi-immersae rotundo-ovoideae rubrae scutulate subtruncatae, stigmate anteriore.

Junín: Chahua, 2,700 meters, *Macbride 3640* (herb. Field Mus. No. 534,704, type). Mito, *1784*.

Peperomia dendromorphis Trelease, sp. nov.

Herba parvula rhizomatosa, caulibus erectis superne ramosis gracilibus 1–2 mm. crassis puberulis; folia inferne opposita vel vulgo ad nodum 3–5 lanceolato-oblonga vel elliptico-subobovata obtusa basi acuta 8–10 mm. longa 3–4 mm. lata transiente puberula obscure pinnatinervia, petiolo 1 mm. longo; spicae terminales filiformes 20–30 mm. longae in sicco fuscae, pedunculo 5–10 mm. longo; bracteae rotundo-peltatae.

Cuzco: Marcapata, 3,000 meters, *Weberbauer 7800* (herb. Field Mus. No. 605,350, type).

Peperomia deodorata Trelease, sp. nov.

Herba modice parva rhizomatoso-assurgens glabra carnosa; folia alterna elliptica vel subobovata obtusa vel emarginulata basi cuneata 4–7 cm. longa 2–3 cm. lata pinnatinervia opaca, petiolo 1–2 cm. longo; spicae 1–2 pedunculum terminalem 1-bracteatum terminantes vel ex axillis superioribus nascentes 120 mm. longae 2 mm. crassae, pedunculo 15 mm. longo; bracteae rotundo-peltatae majusculae; baccae ellipsoideae, rostro brevi crasso, stigmate anteriore.

Junín: Chanchamayo Valley, 1,500–1,800 meters, *Carlos Schunke 381* (herb. Field Mus. No. 571,435, type), *551, 1569, 1493, 1584*.

In its dried state this plant lacks the usual fragrance of *P. magnoliaefolia* and its allies.

Peperomia dependens R. & P. Fl. 1: 33. *pl. 48*. 1798. *Piper dependens* Vahl, Enum. 1: 338. 1805.

A rather large, glabrous herb; leaves alternate, ovate, acuminate, cordate, supeltate at the very base, 15–16 cm. long, 9–13-nerved, drying pellucid; petiole 10 cm. long; spikes paired in the axils of reduced upper leaves, 80 mm. long, 3 mm. wide; peduncle 2 cm. long; bracts ovate-peltate; berries ovoid; stigmas subapical. Neg. 8379.

Huánuco: Posuso, *Pavón 36; Ruiz*, type.

Peperomia Diehliana Trelease, sp. nov.

Herba parva fragilis succulenta ramosa, caule 1–2 mm. crasso primo plus minusve hirtello; folia ad nodum circa 3 rotundo-elliptica

paullo apiculata vel reflexo-emarginulata basi subobtusa 6 mm. longa 5 mm. lata glabra, petiolo 1–2 mm. longo sparse hirtello; inflorescentia non visa.

Type in herb. Field Mus. (No. 630,026), probably collected in the Department of Cuzco, *Adolfo Diehl 2526*.

Similar to *P. rosea*.

Peperomia distractiflora Trelease, sp. nov.

Herba modice parva, caule 1–5 mm. crasso puberulo sed glabrescente et propter exfoliationem lucido; folia ad nodum 3–5 elliptica vel superiora oblonga utrinque subobtusa 10 mm. longa 3–4 mm. lata, supra obscure papillosa, subtus pallidiora glandulosogranulosa, petiolo 1 mm. longo; spicae terminales et ex axillis superioribus 30–50 mm. longae 1 mm. crassae in statu adulto laxiflorae, pedunculo 5 mm. longo glabro; bracteae rotundo-peltatae virides; ovarium immersum ovoideum, stigmate obliquo.

Junín: Hacienda Chalhuapuquio, *Stevens 214*, type.

Peperomia dolabriformis HBK. Nov. Gen. & Sp. 1: 60. *pl. 4*. 1815. *Piper dolabriforme* Poir. Encycl. Suppl. 4: 464. 1816.

A rather tall, simple, glabrescent, succulent herb; stem 5 mm. thick; leaves alternate, compressed from the sides so as to stand vertically and not horizontally, spatulate or dolabriform, more or less obliquely submucronate, grooved on the upper edge, about 3 cm. long and 1.5 cm. wide, cuneately subsessile, coriaceous; spikes 10–60 mm. long, 1 mm. thick, in a panicle long-stalked above the leaves; bracts round-peltate.

Piura: Huancabamba, *Bonpland*, type.—Without locality, *Weberbauer 6061*.

Peperomia dolabriformis var. **velutina** Trelease, var. nov.

Herba, caule dense velutino; folia 2.5 cm. longa 1 cm. lata; spicae 30 mm. longae 1 mm. crassae.

Cajamarca: Cajamarca, 500–600 meters, *Weberbauer 3797*, type.

Peperomia Drapeta Trelease, sp. nov.

Herba modice parva diffusa arboricola, caule in statu sicco anguloso subgracili 1–2 mm. crasso, ramis dense intertextis, sterilibus ad apices crispo-villosis; folia alterna rotunda vel ovata et subacuminata, longiora basi subacuta, parva 1–3.5 cm. longa 1.5–2 cm. lata, in sicco subopaca, 3–5-nervia, supra crispo-pubescentia vel nervis exceptis glabrescentia, petiolo 1 cm. longo adpresso-piloso; spicae

terminales et axillares 30–50 mm. longae 1 mm. crassae laxiflorae, pedunculo 5 mm. longo sparse molliter piloso vel glabrato; bracteae rotundo-peltatae majusculae; baccae rotundato-ovoideae mucronatae, stigmate subapicali.

Huánuco: Huacachi near Muña, 1,950 meters, *Macbride 4122* (herb. Field Mus. No. 535,193, type).

Peperomia elegans C. DC. in DC. Prodr. 16, pt. 1: 430. 1869.

A glabrous, spreading herb; stem slender; leaves alternate, lance-elliptic, acute at both ends or gradually acuminate, 4–8 cm. long, 2.5–5 cm. wide, pinnately nerved; petiole 3–7 cm. long; spikes terminal or sympodial, paired from a slender stalk 4 cm. long, 30–40 mm. long, 2 mm. thick; peduncle 1–2 cm. long; bracts round-peltate; berries oblong, with a slender beak; stigma anterior at the base of the beak. Neg. 8319.

San Martín: Río Mayo, Tarapoto, *Spruce 4871*, type.—Huánuco: Mountains of Huánuco, *Haenke* (?; herb. Prague, under the name *P. reptans* Opiz).

Peperomia elegantifolia Trelease, sp. nov.

Herba mediocris glabra silvicola; folia alterna lanceolata vel typice lanceolato-obovata subacuta basi cuneata 9–10 cm. longa 3–4.5 cm. lata e dimidio inferiore pinnatinervia, petiolo vix 1 cm. longo; spicae in axillis binae et graciliter pedunculatae, pedunculo 3 cm. longo, vel pedunculo longiore et apice folio reducto onusto, 40–80 mm. longae, pedunculo ultimo 5–10 mm. longo; bracteae subelliptico-peltatae.

San Martín: San Roque, 1,350–1,500 meters, *Williams 7781* (herb. Field Mus. No. 629,533, type).—Loreto: Pumayacu, 600–1,200 meters, *Klug 3180*. "Sacha-chullcu."

Peperomia elliptico-rhombea C. DC. in DC. Prodr. 16, pt. 1: 407. 1869.

A moderate-sized, suberect herb, from crisp-pubescent glabrescent; leaves alternate, subrhombic-elliptic or ovate, acute or subobtuse at the base, 3–4 cm. long, 2–3 cm. wide, submultiple-nerved from the lower half; petiole 10–15 mm. long; spikes terminal and from the upper axils, 1 or 2 on a short, 1-bracted stalk, slender, over 100 mm. long; peduncle 1 cm. long; bracts round-peltate; berries round-ovoid, obliquely beaked; stigma at the base of the beak.

Type collected in Peru, without definite locality, *Mathews 1835*. —Huánuco: Casapí, *Mathews 1689*.—San Martín: Tarapoto, *Spruce 4095* (?).

Peperomia emarginata R. & P. Fl. 1: 33. *pl. 49*. 1798. *Piper emarginatum* Vahl, Enum. 1: 339. 1805. *Peperomia obtusifolia* var. *emarginata* Dahlst. Svensk. Vet. Akad. Handl. 33, pt. 2: 66. *pl. 2*. 1900.

A rather large, repent-assurgent, glabrous herb; stem 3–5 mm. thick; leaves alternate, oblanceolate-spatulate, emarginate, cuneate, 12 cm. long, 5 cm. wide, pinnately nerved; petiole 2.5 cm. long; spikes 1 or 2 on terminal or axillary stalks 4 cm. long, 120 mm. long, 10 mm. thick; peduncle 5 cm. long; bracts round-peltate; ovary ovoid, obliquely beaked; stigma anterior.

Huánuco: Posuso, *Ruiz 77*, type.

Peperomia emarginulata C. DC. in DC. Prodr. 16, pt. 1: 433. 1869. *P. obtusifolia* Auct. in part as to Peru.

A moderately small, erect, glabrous herb; stem angular; leaves alternate, obovate, the typically somewhat narrowed apex emarginulate, cuneate at the base, 3–3.5 cm. long, 1.5–2 cm. wide, pinnately nerved below; petiole 5–10 mm. long; spikes paired on a slender terminal stalk 2 cm. long, 50 mm. long, 2 mm. thick; peduncle 10–15 mm. long; bracts round-peltate.

Type collected in Peru by Pavón.—Huánuco: Casapí, *Mathews 1687*.

Peperomia (?) **enckeaefolia** Trelease, sp. nov.

Herba plus minusve caespitosa glabra, interdum suffruticosa, 15 cm. tantum alta, caule 2 mm. crasso, internodiis brevibus; folia alterna ovata subacuminata basi rotundata ad petiolum angustata 5–6 cm. longa 3.5–4 cm. lata 5-nervia, nervis ut venis transversis conspicuis in statu adulto impressis, in sicco firmo-papyracea viridia lucida, nervis serius albescentibus, margine superne tenui albescente, petiolo 10 mm. longo; inflorescentia non visa.

Loreto: San Lorenzo, Río Marañón Valley, 150 meters, *Killip & Smith 29201* (type in U. S. Nat. Herb.).

Peperomia enenyasensis Trelease, sp. nov.

Herba majuscula gracilis pendula epiphytica ubique minute crispo-pubescens vel caulibus vetustioribus et pagina superiore foliorum glabrescentibus; folia alterna subovata acute acuminata

basi acuta vel subobtusa 7–10 cm. longa 4–5 cm. lata pinnatinervia in sicco tenuia fusca, petiolo 1.5–4 cm. longo; spicae geminatae ramulum brevem gracili-bracteatum sympodialem terminantes, adultae 150 mm. longae cum baccis 8 mm. diam., pedunculo 2 cm. longo; bracteae rotundo-peltatae; baccae pallidae anguste oblongae scutulo acuto oblique truncatae, stigmate centrali.

Junín: Eneñas, Pichis Trail, 1,600–1,900 meters, *Killip & Smith 25654* (type in U. S. Nat. Herb.).

Peperomia erythrocorma Trelease, sp. nov.

Herba modice parva repens tantum ciliata, caule subgracili 2–3 mm. crasso; folia alterna reniformia vel rotundo-ovata ad ovata interdum abrupte breviacuminata, basi truncate subcordata vel rotundata et breviter attenuata, mediocria 3–6 cm. longa 3.5–5 cm. lata, in sicco opaca, subpalmatim 7–9-nervia transiente ciliata, petiolo 2–2.5 cm. longo; inflorescentia non visa.

Huánuco: Posuso, 600 meters, *Macbride 4678* (herb. Field Mus.).

Peperomia erythrostachya Trelease, sp. nov.

Herba majuscula glabra pendula epiphytica, caule modice gracili 2–3 mm. crasso in sicco rubro-brunneo et sublucido; folia alterna ovata vel elongato-ovata acuta vel subacuminata basi rotundata vel subcordata majuscula 6–9 cm. longa 4 cm. lata, in sicco opaca coriacea multiplinervia, ramulis costae 3–5×2 paribus 1–2 superioribus exceptis basilaribus, petiolo 2.5–6 cm. longo et ultra; spicae axillares longae graciles 200 mm. longae 2 mm. crassae obscure rubrae densiflorae, pedunculo 2 cm. longo medio bracteato; bracteae rotundo-peltatae majusculae.

Huánuco: Posuso, 600 meters, *Macbride 4667* (herb. Field Mus. No. 535,741, type).

Peperomia estrellana Trelease, sp. nov.

Herba subparva glabra rhizomatosa epiphytica, ramis erectis foliatis; folia ad nodum 3–5, foliis stolonum subspathulatis emarginulatis basi cuneatis opace cinereo-viridibus obscure 3-nerviis, petiolo 2 mm. longo; spicae terminales 20 mm. longae 2 mm. crassae, pedunculo 15 mm. longo; bracteae rotundo-peltatae; baccae ovoideae acutatae pseudocupula onustae, stigmate apicali.

Ayacucho: Estrella, 500 meters, *Killip & Smith 23064* (type in U. S. Nat. Herb.).—Junín: Perené Bridge, 700 meters, *Killip & Smith 25281*.

Peperomia exiguispica Trelease, sp. nov.

Herba gracilis subsimplex majuscula glabra arboricola, caule 2–3 mm. crasso; folia alterna lanceolato-elliptica utrinque subacuta 4–5 cm. longa 2–3 cm. lata obscure 5-nervia subtus glanduloso-granulosa in sicco opaca, petiolo 10 mm. longo; spicae gracillimae 90 mm. longae, pedunculo 10 mm. longo; bracteae rotundo-peltatae.

Loreto: Puerto Arturo, 155–210 meters, *Williams 5331* (herb. Field Mus. No. 622,538, type).

Peperomia exilamenta Trelease, sp. nov.

Herba majuscula epiphytica vel terrestris, caule in sicco 3–4 mm. crasso profunde angulato sparsissime molliter setuloso; folia vulgo ternata late lanceolata vel elliptico-lanceolata obtuse acuminata basi acuta 5–6 cm. longa 2–2.5 cm. lata 3-nervia, nervis supra impressis subtus prominentibus, glabra supra impresso-punctulata revoluta valde rigida, petiolo 5 mm. longo puberulo; spicae terminales et ex axillis superioribus 120 mm. longae 1 mm. crassae, pedunculo 10–25 mm. longo; bracteae rotundo-peltatae; baccae ovoideae acutatae pseudocupula onustae, stigmate apicali.

San Martín: Tarapoto, 360–900 meters, *Williams 5722* (herb. Field Mus. No. 622,513, type), *6258*.

Peperomia exiliramea Trelease, sp. nov.

Herba majuscula glabra epiphytica, caule 3 mm. crasso; folia alterna elliptica acute acuminata basi acuta 11–12 cm. longa 5–6 cm. lata e dimidio inferiore graciliter pinnatinervia, in sicco tenuia, petiolo 1–2 cm. longo; spicae solitariae ramulos breves aphyllos sympodiales basi anguste bibracteatos aequilongos terminantes 150 mm. longae 2 mm. crassae vel majores; bracteae rotundo-peltatae; ovarium rotundatum acute subscutulatum.

Loreto: Santa Rosa, 135 meters, *Killip & Smith 28768* (type in U. S. Nat. Herb.).

Peperomia falsa A. W. Hill, Ann. Bot. 21: 151. *pl. 15*. 1907.

A small, glabrous, acaulescent herb; leaves from a corm rooting from the sides and base; leaves round-peltate, 1–3 cm. in diameter, subcoriaceous; petiole 3–5 cm. long; spikes 15–30 mm. long; peduncle elongate; bracts round-ovate; berries globose-ellipsoid, reticulate; pseudopodium thick and cylindric; stigma apical.

Puno: Pucará, 3,700 meters, among rocks, *Weberbauer 451*, type.

Peperomia famelica Trelease, sp. nov.

Herba depauperata terrestris plus minusve caespitosa, caule plus minusve crispo-pubescente; folia alterna subovato-elliptica utrinque subacuta 2.5–5 cm. longa 1.5–2.5 cm. lata 5-nervia in vivo supra obscure viridia, nervis albis, subtus rosea, petiolo 5 mm. longo; spicae graciles 60 mm. longae pseudopedicellis brevibus onustae, pedunculo 10 mm. longo; bracteae rotundo-peltatae.

Junín: East of Quimirí Bridge, near La Merced, 800–1,300 meters, *Killip & Smith 23961* (type in U. S. Nat. Herb.).

Peperomia ficta Trelease, sp. nov.

Herba valida caespitoso-repens succulenta epiphytica, caule 2–4 mm. crasso glabro in sicco sulcato; folia vulgo ternata rotundo-elliptica vel subovata vel subobovata obtuse subacuminata basi acuta 3–4 cm. longa 2–3 cm. lata circa 5-nervia glabra in sicco dura revoluta opaca, petiolo 5 mm. longo brunneo-puberulo; spicae terminales, juveniles 30 mm. longae 2 mm. crassae, pedunculo 15 mm. longo; bracteae rotundo-peltatae.

Junín: East of Quimirí Bridge, La Merced, 800–1,300 meters, *Killip & Smith 23989* (type in U. S. Nat. Herb.).

Peperomia Fieldiana Trelease, sp. nov.

Herba modice parva repens glabra, caule crassiusculo 3–5 mm. crasso, internodiis brevibus, ramis adscendentibus brevibus; folia alterna elliptica vel obovato-elliptica apice rotundato emarginata basi longicuneata majuscula 10–13 cm. longa 4.5–6.5 cm. lata in sicco subtenuia pinnatinervia, costae ramulis circa 5×2, petiolo 15–25 mm. longo alato; spicae solitariae vel ad nodos ramuli lateralis 1-foliati vix 25 mm. longi geminatae vix 110 mm. longae et 2 mm. crassae densiflorae, pedunculis 2.5–3 cm. longis; bracteae rotundo-peltatae parvae in pseudoverticillo circa 12; baccae oblongae breviter mucronatae, stigmate anteriore.

Huánuco: Posuso, 600 meters, *Macbride 4684* (herb. Field Mus. No. 535,758, type).—Junín: Río Perené, *Killip & Smith 25167*.

Peperomia filiformis R. & P. Fl. 1: 31. *pl. 47.* 1798. *Piper brachystachyum* Vahl, Enum. 1: 354. 1805. *Troxirum filiforme* Raf. Sylv. Tellur. 85. 1838.

A transiently puberulent or quickly glabrate, repent herb; stem filiform; leaves mostly 4 at a node, obovate, rounded at the apex, cuneate at the base, 7 mm. long, 5 mm. wide, 3-nerved; petiole

very short; spikes terminal, 10 mm. long, 1 mm. thick, the peduncle of equal length; bracts ovate-peltate; ovary ovoid, the stigma apical.

Huánuco: Chinchao, *Ruiz & Pavón*, type. Pampayaco, *Poeppig.* —Junín: Carpapata, 2,700–3,200 meters, *Killip & Smith 24392.*— Puno: Tabina, *Lechler 2089.* Sangabán, *Lechler 2409.*

Peperomia fissicola Trelease, sp. nov.

Herba modice alta glabra e fissuris rupium cito erecta, caule 3 mm. crasso firmo; folia alterna ad apicem caulis aggregata recurva dolabriformia utrinque acutata 15 mm. longa 5 mm. lata, petiolo vix 5 mm. longo; spicae paniculatae prolongationem longiusculam gracilem paucifoliatam caulis terminantes 50 mm. longae 1 mm. crassae, pedunculis 5 mm. longis; bracteae rotundo-peltatae.

Huánuco: Huánuco, 2,100 meters, *Macbride 3255* (herb. Field Mus. No. 534,325, type).

Peperomia flabilis Trelease, sp. nov.

Herba modice parva plus minusve furcata glabra, caule 2–3 mm. crasso; folia ad nodum 3–4 obtuse acuminata basi acuta 2–3 cm. longa 1–1.5 cm. lata 3-nervia opaca, subtus minute granulosa pallidiora, petiolo 3–6 mm. longo gracili; spicae terminales et ex axillis superioribus filiformes 100 mm. longae, pedunculo gracillimo 10 mm. longo; bracteae rotundo-peltatae.

Loreto: Victoria on the Amazon River, *Williams 2988* (herb. Field Mus. No. 608,872, type).

Peperomia flavamenta Trelease, sp. nov.

Herba modice parva repenti-caespitosa succulenta fere glabra, caule 1–2 mm. crasso in sicco sulcato; folia 2–3-nata lanceolato-ovata acuminata basi acuta 2–5 cm. longa 1–2 cm. lata 3- vel obscure 5-nervia, petiolo 3–5 mm. longo puberulo; spicae flavae terminales filiformes 40 mm. longae, pedunculo 10 mm. longo; bracteae rotundo-peltatae.

Loreto: Mishuyacu, near Iquitos, 100 meters, *G. Klug 987* (herb. Field Mus. No. 630,605, type).

Peperomia flavescens C. DC. in DC. Prodr. 16, pt. 1: 436. 1869.

A spreading herb, glabrous except for the loosely villous petioles and lower leaf surface; stem 2–3 mm. thick; leaves alternate, ovate, subacute, peltate close to the subcordate base, 3.5 cm. long, 2–3 cm. wide, 5–7-nerved, coriaceous and yellow; petiole 2 cm. long;

spikes subterminal, 80 mm. long, 3 mm. thick or larger; peduncle 2–3 cm. long; bracts round-peltate; berries ovoid, stout-beaked; stigma anterior. Neg. 8527.

Type collected in Peru by Pavón.

Peperomia flavescens var. **Lechleri** Trelease, var. nov.

Planta pubescentia plus minusve persistente induta; folia 2.5 cm. longa, 2.5 cm. lata.

Puno: Sangari, *Lechler 2691* in part (type in herb. Kew.).

Peperomia flavescens var. (?) **Markhami** Trelease, var. nov.

Crispo-pubescens, foliis glabrescentibus 3.5 cm. longis 2 cm. latis, costa lata pallida.

Puno: Tambopata, "carpeting the ground in parts of the forests," in 1910, *Clements R. Markham 4* (type in herb. Kew.; detached leaves only).

Peperomia flavescentifolia Trelease, sp. nov.

Herba gracilis pendula epiphytica essentialiter glaber; folia elliptica subacuminata basi subacuta 3–5 cm. longa 2–3 cm. lata obscure pinnatinervia subtus flavescentia granulosa, in sicco valde coriacea, petiolo vix 5 mm. longo; spicae ad apicem ramuli brevis sympodialis geminatae 100–150 mm. longae graciles, pedunculo 15 mm. longo; bracteae rotundo-peltatae; baccae pallidae conico-oblongae acute oblique truncatae; stigma ad scutulum insertum.

Loreto: Iquitos, 100 meters, *Killip & Smith 27142* (type in U. S. Nat. Herb.). Mishuyacu, near Iquitos, *Klug 99* (lower leaves lanceolate, 7 cm. long, 2–3 cm. wide).

Peperomia foliata Trelease, sp. nov.

Herba modice alta gracilis dense foliata, caule subquadrangulari puberulo; folia vulgo ad nodum 6–8 inferne reflexa et breviora linearioblanceolata obtusa vel subacuta basi subacuta 10–15 mm. longa 3 mm. lata pinnatinervia, supra ad costam subpuberula, subtus pallidiora granulosa, petiolo 1 mm. longo; spicae terminales et ex axillis superioribus, juveniles 25 mm. longae 1 mm. crassae densiflorae, pedunculo vix 3 mm. longo; bracteae rotundo-peltatae.

Junín: Huacapistana, *Stevens 65* (type), *178*.

Peperomia foliiflora R. & P. Fl. 1: 30. *pl. 45*. 1798. *Phyllobryon Pavoni* Miq. Syst. 50. 1843; Ill. Piper. *pl. 2*. *Piper foliiflorum* Vahl, Enum. 1: 356. 1805.

A rather small, stoloniferous, erect, glabrous herb; stem 2–3 mm. thick; leaves alternately clustered at the top of the stem, ovate, acuminate, cordate, 3–4 cm. long, 2–3 cm. wide, 9-nerved with the longer nerves forked; petiole 2–4 cm. long, winged; spikes several, umbellate from the apex of the peduncle; bracts round-peltate; berries ellipsoid, 6 mm. long, 1 mm. wide, flat, distinctly wrinkled, nearly sessile, mucronate; stigma apical. Neg. 8381.

Huánuco: Chinchao, *Pavón 36*, type.—Jauja: Río Masamerich, 1,500 meters, *Weberbauer 6665*.—Junín: La Merced, *Killip & Smith 24656*.

The specific name appears as *foliflora* on the original plate.

Peperomia fortipes Trelease, sp. nov.

Herba parva repenti-assurgens glabra foliosa, caule 2 mm. crasso; folia alterna oblanceolata obtusa basi cuneata 2–3 cm. longa 1–1.5 cm. lata obscure 3-nervia in sicco opaco-olivacea, petiolo 5 mm. longo; spicae 40–50 mm. longae 2 mm. crassae densiflorae, pedunculo 15 mm. longo 1 mm. crasso; bracteae rotundo-peltatae.

Ayacucho: Aina, 750–1,000 meters, *Killip & Smith 22589* (type in U. S. Nat. Herb.).

Peperomia Fortunati Trelease, sp. nov. *P. Mandoni* Auct.

Herba modice longicaulis delicata glabra pellucida, ramulis floriferis in sicco gracillimis; folia ad apices ramorum alterne congesta subrhombeo-ovata vel elliptica acute vel obtusissime acuminata basi acuta vel obtusa 13–20 cm. longa 8–10 cm. lata delicate 5–7-nervia, costa obscure ramosa, petiolo 2 mm. longo; spicae solitariae ad basin laminae adnatae 5 mm. longae fere sessiles; bracteae subcucullatae distichae; baccae ellipsoideae breviter stipitatae, stylo gracili, stigmate apicali.

Cuzco: Valley of Río Apurímac, *Fortunato L. Herrera*, February, 1929 (herb. Field Mus. No. 589,470, type).—Without locality, *Weberbauer 5684*.

Peperomia fragilissima Trelease, sp. nov.

Herba carnosa fragilissima, caule gracili; folia alterna rotundo-ovata obtusissima basi cordata 2–4 cm. longa 2–3.5 cm. lata multiplinervia, nervis longioribus furcatis, petiolo 2–3 mm. longo; spicae axillares et terminales gracillimae 40–50 mm. longae, pedunculo 20–25 mm. longo.

Loreto(?): Yurimaguas, May, 1855, *Spruce* (type in herb. Kew.).

Peperomia furcata Opiz in Presl, Rel. Haenk. 164. 1831.

A small, repent herb, at most with ciliate leaves; leaves alternate, round-ovate, subacute at both ends or round-based, 5–7-nerved with the inner nerves confluent at the base; petiole 5–10 mm. long; spikes terminal or paired on a sympodial common stalk, 40 mm. long, 2 mm. thick; peduncle 1–2 cm. long.

Type from mountains of Peru, *Haenke.*

Peperomia fuscispica C. DC. Bot. Jahrb. 40: 260. 1908.

A small, glabrous epiphyte; stem filiform; leaves alternate, round or subobovate, acute-based, 9 mm. in diameter, 3- or less evidently 5-nerved; petiole 3 mm. long; spikes terminal, 20 mm. long, 2 mm. thick; peduncle 3 mm. long; bracts round- or elliptic-peltate; ovary subovoid; stigma oblique.

Huánuco: Monzón to Río Huallaga, *Weberbauer 3627,* type.

Peperomia galoides HBK. var. **aromatica** C. DC. Bot Jahrb. 40: 266. 1908.

Aromatic; leaves oblong, somewhat black-punctulate.

Ancash: Caraz, *Weberbauer 3227,* type. "Tunacongona."

The typical form of the species has a wide distribution in tropical America.

Peperomia Gayi C. DC. Ann. Cons. Jard. Genève 2: 283. 1898.

A moderately small, simple, very dingy-hirsute herb; stem slender; leaves opposite, round in cross section below, elliptic upward, short-acuminate, acute-based, 2–4 cm. long, 1.5–2.5 cm. wide, 5-nerved, black-punctulate beneath; petiole 1 cm. long; spikes terminal and from the upper axils, 50 mm. long, 1 mm. thick; peduncle 1 cm. long; bracts round-peltate; ovary obovoid; stigma oblique.

Based on material collected in Peru, *Gay 2181, 2310, 2681.*

Peperomia gibba C. DC. Verh. Bot. Ver. Brandenb. 47: 116. 1905.

A moderate-sized, spreading, glabrous herb; leaves alternate, round-ovate, slightly mucronate, shallowly and openly cordate, 5–6 cm. long, 3.5 cm. wide, 7-nerved; petiole 3–4 cm. long; spikes axillary and terminal, slender, 75 mm. long; peduncle 3–4 cm. long; bracts elliptic-peltate; berries oblong, obliquely swollen at the base, subtruncate; stigma subapical.

Loreto: Pongo de Cainarachi, *Ule 6322,* type.

Peperomia Gilberti Trelease, sp. nov.

Herba minor stolonifero-erecta divaricato-ramosa, caule gracili 1–2 mm. crasso puberulo serius furfuraceo-exfoliante; folia ad nodum circa 5 suboblonga, inferiora spathulato-revoluta, obtusa basi subacuta parva 8–10 mm. longa 3–4 mm. lata in sicco fusca opaca non manifeste nervata, supra puberula, petiolo vix 2 mm. longo puberulo; spicae ramos terminantes 25 mm. longae 1 mm. crassae, floribus laxiuscule dispositis, pedunculo vix 5 mm. longo subpuberulo; bracteae rotundo-peltatae; baccae globosae submucronulatae, stigmate obliquo.

Cuzco: Ollantaitambo, 3,000 meters, *Cook & Gilbert 740* (type in U. S. Nat. Herb.).

Peperomia glabrirhachis Trelease, sp. nov.

Herba modice parva stolonifero-caespitosa, caule 1–2 mm. crasso anguloso sparse retrorso-pubescente; folia ad nodum circa 4 subrhombeo-elliptica vel obovata obtusa basi acuta 10 mm. longa 5–6 mm. lata 1-nervia revoluta, subtus sparse pubescentia, utrinque papilloso-rugosa, petiolo vix 1 mm. longo; spicae terminales 15 mm. longae 1 mm. crassae glabrae, pedunculo filiformi velutino spicam aequante; bracteae rotundo-peltatae.

Junín: Hacienda Chalhuapuquio, *Stevens 211* (type). Huacapistana, *Stevens 64, 179.* Eneñas, *Killip & Smith 25653.*

Peperomia glareosa Trelease, sp. nov.

Herba majuscula caespitosa assurgens, caule 1 mm. vel prope basin ad 4–5 mm. crasso in sicco sulcato puberulo granuloso; folia ad nodum 2–4 late lanceolata obtusa basi acuta in sicco firma opaca, subtus granulosa, 3-nervia, superiora 1.5 cm. longa 1 cm. lata, folia ramulorum sterilium 3.5 cm. longa 1.5 cm. lata, petiolo 2–3 mm. longo subpuberulo-granuloso; spicae terminales et axillares 55 mm. longae 2 mm. crassae, pedunculo 15 mm. longo granuloso; bracteae rotundo-peltatae; baccae ovoideae ad stylum attenuatae pseudocupula onustae, stigmate apicali.

Loreto: Río Santiago, 200 meters, *Ynes Mexia 6236* (type in herb. Univ. Calif.).

Peperomia granulatifolia Trelease, sp. nov.

Herba epiphytica majuscula pendula glabra, caulibus gracillimis; folia alterna elliptica acuminata basi acuta 4–7 cm. longa 2–3.5 cm. lata in sicco coriacea obscure pinnatinervia, petiolo 5

mm. longo; spicae terminales et sympodiales solitariae vel ad apicem ramuli brevis 2-bracteati geminatae 100 mm. longae 1 mm. crassae vel ultra, pedunculo 5–10 mm. longo.

Junín: Puerto Yessup, 400 meters, *Killip & Smith 26390* (type in U. S. Nat. Herb.).

Peperomia granulatilimba Trelease, sp. nov.

Herba epiphytica fere glabra pendula, caulibus gracilibus 2 mm. crassis; folia alterna subovato-elliptica acute acuminata basi rotundata 6 cm. longa 3 cm. lata, vel elliptico-oblonga basi subacuta atque 10 cm. longa et 4 cm. lata, pinnatim paucinervia pallido-granulosa sparse pilosa longiciliata, petiolo 5–10 mm. longo; spicae 3 caulem brevem sympodialem terminantes 100 mm. longae 2 mm. crassae, pedunculo vix 5 mm. longo; bracteae rotundo-peltatae; baccae oblongae vel conice productae, oblique acuto-scutulatae, stigmate centrali.

Loreto: Yurimaguas, Lower Río Huallaga, 155–210 meters, *Llewelyn Williams 4617* (herb. Field Mus. No. 629,584, type). La Victoria, *Williams 2945, 2802, 3084.* Pichis Trail, *Killip & Smith 26215.* Pumayacu, 600–1,200 meters, on tree, *Klug 3200.*

Peperomia Grisari C. DC. Bull. Herb. Boiss. 6: 516. 1898.

A slender, repent-assurgent herb, the petiole and the nerves beneath coarsely puberulent; leaves alternate, round-ovate, acute, shallow-cordate with the margin crossing the petiole, 7 cm. long, 6 cm. wide, 9-nerved, paler beneath; petiole 4 cm. long; spikes terminal, paired on a stalk 2 cm. long, 50 mm. long, 2 mm. thick; peduncle 15–20 mm. long.

Type collected in Ecuador or Peru, *Grisar.*

Peperomia guayrapurana Trelease, sp. nov.

Herba gracilis, caule, petiolis et foliis subtus rigido-hirtellis; folia ad nodum 3–4 elliptica utrinque acuta 1.5–2 cm. longa 1 cm. lata 3-nervia, petiolo vix 5 mm. longo; spicae terminales 20 mm. longae 1 mm. crassae, pedunculo 1 cm. longo.

San Martín: Monte Guayrapurana, near Tarapoto, *Spruce 4010* (type in herb. Kew.).

Peperomia gucayana Trelease, sp. nov.

Herba erecta vix ramosa firma, caule 2–3 mm. crasso minute fusco-papilloso; folia plerumque opposita late obovata utrinque acuta vix 2 cm. longa et 1.5 cm. lata 3-nervia, costa plus minusve

ramosa, in sicco tenuia et saepe conduplicata, petiolo 2–4 mm. longo minute papilloso; spicae axillares 60–80 mm. longae 1 mm. crassae, floribus subdense dispositis, pedunculo 10 mm. longo; bracteae rotundo-peltatae; baccae ovoideae crasse submucronatae, stigmate obliquo.

Cuzco: Near Gucay, Urubamba Valley, 3,000 meters, *Fortunato L. Herrera 1464* (type in U. S. Nat. Herb.).

Peperomia haematolepis Trelease, sp. nov.

Herba majuscula (repenti-assurgens?) succulenta glabra, caule 3–5 mm. crasso furfuraceo-exfoliante; folia alterna orbicularia vel rotundo-subobovata emarginulata basi rotundata vel subacuta 4.5 cm. longa 3–4 cm. lata pinnatim paucinervia, coriacea opaca, petiolo 5–10 mm. longo; spicae terminales, juveniles 15–20 mm. longae 3 mm. crassae, pedunculo 2–2.5 cm. longo; bracteae rotundo-peltatae rubro-aurantiacae.

Junín: Hacienda Chalhuapuquio, *Stevens 212* (type).

Peperomia Haenkeana Opiz in Presl, Rel. Haenk. 162. 1831.

A rather small, erect herb, the stem, petioles, and nerves beneath short-villous or crisp-pubescent; leaves alternately clustered at the top of the stem, round-ovate, acuminate, cordate with overlapping lobes, 4–6 cm. long, 3–5 cm. wide, 7–9-nerved with some nerves forked; petiole 2–3 cm. long; spikes several, umbellate at the end of the peduncle, nearly sessile, barely 10 mm. long, flattened and flowered from the edge; bracts round-peltate.

Type from mountains of Peru, *Haenke.*

Peperomia hamiltonianifolia Trelease, sp. nov.

Herba parva stolonifero-erecta glabra, caule 2 mm. crasso; folia alterna pauca elliptica utrinque subacuta 2–2.5 cm. longa 1 cm. lata in sicco crassa subtus 5-nervia, petiolo 3–5 mm. longo; spicae terminales et axillares 25 mm. longae 1 mm. crassae, pedunculo 5 mm. longo; bracteae rotundo-peltatae comparate magnae.

Type collected in Peru by Gay (herb. Paris).

Peperomia Herrerae Trelease, sp. nov.

Herba assurgens plus minusve ramosa modice parva glabra, caule 2–3 mm. crasso; folia opposita elliptica utrinque acuta 2–2.5 cm. longa 1–1.5 cm. lata delicate 3-nervia, costa plus minusve ramosa, in sicco tenuia viridia, petiolo 2 mm. longo; spicae terminales et axillares subabundantes 40–50 mm. longae 2 mm. crassae,

floribus sublaxe dispositis, pedunculo gracili 15 mm. longo; bracteae rotundo-peltatae; baccae rotundato-ovoideae mucronatae; stigma subapicale plus minusve lobatum.

Cuzco: Hacienda Churu, Paucartambo, 3,500 meters, *Fortunato L. Herrera*, February, 1924 (type in U. S. Nat. Herb.).

Peperomia heterophylla Miq. Lond. Journ. Bot. 4: 415. 1845.

A small, repent-assurgent epiphyte, glabrous except that the filiform stems are at first puberulent; leaves alternate, round-obovate below and 5 mm. in diameter, becoming obovate in the middle and lanceolate and 2 cm. long upward, with the narrowed apex subemarginulate, acute-based, 1-nerved, punctulate beneath; petiole very short; spikes curved, 50 mm. long, 1 mm. thick; bracts round-peltate.

Huánuco: Casapí, *Mathews 1686*, type.

Peperomia heterostachya A. Dietr. Syn. Pl. 1: 717. 1831. *Peperomia tristachya* Opiz in Presl, Rel. Haenk. 103. *pl. 30.* 1831, non *P. tristachya* HBK. 1815. *Piper heterostachyon* D. Dietr. Syn. Pl. 1: 111. 1839.

A glabrous, succulent, branching herb; leaves opposite below, 3 or 4 at a node above, lance-ovate, long-acuminate, acute-based, 7 cm. long, 3 cm. wide, 3-nerved; petiole 3 mm. long; spikes terminal and from the uppermost axils, elongate.

Huánuco: Huánuco mountains, *Haenke*, type.

Peperomia Hillii Trelease, nom. nov. *Peperomia Gaudichaudii* A. W. Hill, Ann. Bot. 21: 154. 1907, non *P. Gaudichaudii* Miq. 1843.

A small, glabrous, acaulescent herb; leaves from a small, rooted corm, round or subdeltoid, peltate rather below the middle, 5–10 mm. long, 6–8 mm. wide; petiole 2–8 cm. long; spikes 60–80 mm. long; peduncle equaling the petiole; bracts elliptic-peltate; berries round-ovoid, slightly reticulate. Neg. 8345.

Lima: Lima and San Lorenzo, *Gaudichaud 150.* Atocongo, clefts of limestone rocks, 250–500 meters, *Pennell 14750.* Chile.

Peperomia huacachiana Trelease, sp. nov.

Herba majuscula assurgens glabra, caule crassiusculo 3–6 mm. crasso, internodiis brevibus; folia alterna elliptica vel lanceolato-elliptica acuta vel acuminata basin versus sensim acuta, in sicco subtenuia opaca, subtus pallidiora, pinnatinervia ramis costae circa 8–10×2, petiolo 1–2 cm. longo alato; spicae solitariae terminales

vel oppositifoliae ramulum crassum 1-bracteatum vel 1-foliatum 1.5–3 cm. longum terminantes, magnae 200 mm. longae 5 mm. crassae floribus sublaxe insertis; bracteae rotundo-peltatae modice magnae diametro suo remotae, floribus in alveolis lenticularibus immersis; baccae ellipsoideo-oblongae fuscae suboblique truncatae, stigmate in disco anteriore.

Huánuco: Huacachi near Muña, 1,950 meters, *Macbride 3899* (herb. Field Mus. No. 534,962, type). Cani near Mito, 2,550 meters, *3416*.

Peperomia huacapistanana Trelease, sp. nov.

Herba mediocris glabra repens epiphytica, ramis fructiferis brevibus erectis, foliis reductis, caule 2–3 mm. crasso; folia alterna orbicularia vel ovata vel subreniformia apice rotundata basi subtruncata 3.5–4 cm. longa 2.5–3.5 cm. lata 7-nervia, nervis interioribus interdum confluentibus, in sicco coriacea supra obscure viridia subtus pallidiora, petiolo 1.5–2 cm. longo; spicae solitariae vel geminatae vel 4 et ultra et paniculatae, foliis ramulorum fertilium bracteiformibus, 25 mm. longae 2 mm. crassae densiflorae, pedunculo filiformi 10 mm. longo; bracteae rotundo-peltatae.

Junín: Huacapistana, *Stevens 89* (type). Junín: Eneñas, *Killip & Smith 25655, 25736*. San Nicolás, *Killip & Smith 26064*. Huánuco: Posuso, *4678*.

Peperomia huallagana Trelease, sp. nov.

Herba epiphytica modice parva erecta plus minusve dichotoma glabra, caule 2–3 mm. crasso; folia ad nodum vulgo 3–4 obovata ad obovato-oblonga in eodem verticillo, emarginulata basi cuneata 12–20 mm. longa 6–10 mm. lata obscure 3-nervia, costa indistincte ramosa, petiolo 2–5 mm. longo alato; spicae terminales parvae 30 mm. longae 1 mm. crassae densiflorae, pedunculo 1 cm. longo; bracteae rotundo-peltatae, floribus inter costas anastomosantes rhachis immersis.

Huánuco: Río Huallaga Canyon below Río Santo Domingo, 1,200 meters, *Macbride 4264* (herb. Field Mus. No. 535,345, type).

Peperomia huallagana var. **compacta** Trelease, var. nov.

Compacte ramosa brevis; spicae 40 mm. longae 2 mm. crassae, pedunculo duplo breviore.

Junín: Chanchamayo Valley, *Carlos Schunke 1774* (herb. Field Mus. No. 625,560, type).

Peperomia huantana Trelease, sp. nov.

Herba subparva repens corticicola, caule 1 mm. crasso sparse crispo-subvilloso; folia ad nodum 2–4 rhombeo-obovata ad subelliptica obtusa basi acuta 10–15 mm. longa 7–10 mm. lata subtus sparse subvillosa et pallidiora, in sicco tenuia opaca, petiolo 2–3 mm. longo; spicae terminales (?) filiformes 60 mm. longae, pedunculo 20 mm. longo; bracteae rotundo-peltatae; baccae ovoideae acutatae pseudocupula onustae, stigmate apicali.

Ayacucho: Aina, 750–1,000 meters, *Killip & Smith 22728* (type in U. S. Nat.Herb.), *22780*.—Junín: Yapas, *Killip & Smith 25510*(?).

Peperomia huantana var. **enenyasana** Trelease, var. nov.

Pubescentia longior; folia magis lanceolata 20 mm. longa 10 mm. lata.

Junín: Eneñas, Pichis Trail, 1,600–1,900 meters, *Killip & Smith 25727* (type in U. S. Nat. Herb.).

Peperomia huanucoana Trelease, sp. nov.

Herba modice parva assurgens ramosa, caule gracili 1–2 mm. crasso dense papilloso-puberulo; folia ad nodum vulgo 3–4 patentia vel reflexa ovato-elliptica vel oblongo-elliptica utrinque obtusa subsessilia parva 10–20 mm. longa 5–6 mm. lata utrinque papilloso-puberula subtenuia anguste 3-nervia, costa plus minusve ramosa; spicae terminales et axillares 40 mm. longae 1 mm. crassae laxiflorae, pedunculo vix 10 mm. longo papilloso-puberulo; bracteae rotundo-peltatae; ovarium impressum ovoideum, stigmate subapicali.

Huánuco: Huánuco, 2,100 meters, on ledges of rock cliffs, *Macbride 3256* (herb. Field Mus. No. 534,326, type).

On stolons the foliage is very different: leaves overlapping, round-elliptic, thick, revolute, and scarcely more than 5 mm. long and 4 mm. wide.

Peperomia hyporhoda Trelease, sp. nov.

Herba simplex mediocris rhizomatoso-assurgens, caule 2–3 mm. crasso plus minusve crispo-pubescente; folia alterna subelliptica vel inferiora minora et obovata obtusa vel subacuminata basi acuta 2.5–4 cm. longa 2–3 cm. lata 3- vel minus distincte 5-nervia, in sicco granuloso-punctulata, in vivo subtus rubra sed in sicco brunnescentia, petiolo 1 cm. longo crispo-pubescente; spicae 2 apicales 100 mm. longae 3 mm. crassae pseudopedicellis onustae, pedunculo 10–15 mm. longo; bracteae rotundo-peltatae.

Junín: Yapas, Pichis Trail, 1,350–1,600 meters, *Killip & Smith 25479* (type in U. S. Nat. Herb.).

Peperomia inaequalifolia R. & P. Fl. 1: 30. *pl. 46*. 1798. *Piper inaequalifolium* Vahl, Enum. 1: 355. 1805. *Piper aromaticum* Willd. Enum. Pl. Suppl. 3. 1813.

A rather large, aromatic, subcespitose herb, or suffrutescent; leaves 4 at a node, oblong-spatulate, obtuse, cuneate at the base, 5 cm. long, 1.5 cm. wide, reduced below to scarcely 3.5 cm. long and 1 cm. wide, 3-nerved; petiole 5 mm. long; spikes terminal and axillary, elongate.

Type material from Lima and Huánuco, *Pavón*.—Without locality, *Mathews 124, 933*.

Peperomia inaequilatera Trelease, sp. nov.

Herba modice parva (repens?) assurgens dense puberula, caule subgracili 2–3 mm. crasso, internodiis brevibus; folia ad nodum vulgo ternata elliptico-oblonga utrinque subacuta vel obtusa parva 2 cm. longa 1 cm. lata, foliis ramulorum sterilium majoribus 4.5 cm. longis 2 cm. latis vel multo majoribus 7 cm. longis et 2.5 cm. latis atque rhombeo-oblanceolatis, uno latere ad petiolum 3 mm. profundius quam altero decurrente, in sicco tenuia pellucida, 5-nervia costa plus minusve ramosa, petiolo brevi vix 5 mm. longo; spicae terminales 60 mm. longae 1 mm. crassae, floribus laxe subannulatis, pedunculo 1 cm. longo ut rhachi puberulo; bracteae rotundo-peltatae; ovarium ovoideum, stigmate subapicali.

Huánuco: Piedra Grande near Río Santo Domingo, 1,500 meters, *Macbride 3858* (herb. Field Mus. No. 534,921, type).

Peperomia induratifolia Trelease, sp. nov.

Herba parva essentialiter glabra repens vel stolonifera in sicco nigrescens, caule 1–2 mm. crasso, internodiis brevibus; folia alterna vel suprema ternata lanceolata acuminata basi acuta 20–30 mm. longa 5–12 mm. lata opaca vix plus quam 1-nervia, petiolo 5–10 mm. longo; spicae ut videtur terminales filiformes 80–90 mm. longae, pedunculo 10 mm. longo; bracteae rotundo-peltatae.

Junín: Chanchamayo Valley, 1,500 meters, *Carlos Schunke 1582* (herb. Field Mus. No. 627,436, type).

Peperomia itayana Trelease, sp. nov.

Herba subparva brevicaulis glabra; folia pauca rotundo-ovata obtusissima basi breviter cordata 7–9 cm. longa 6–8 cm. lata 7-

nervia, costa nervisque lateralibus 4-ramosis, in sicco tenuia viridia, petiolo 8–10 mm. longo (et ultra?); inflorescentia non visa.

Loreto: Soledad, Río Itaya, 110 meters, *Killip & Smith 29753* (type in U. S. Nat. Herb.), *29618*. San Antonio, *Killip & Smith 29364*, younger and smaller. Santa Rosa, *Killip & Smith 28724*.

Peperomia juniniana Trelease, sp. nov.

Herba mediocris ramosa, caule 1–3 mm. crasso transiente crispo-villoso; folia alterna ovata acuminata basi breviter cordata basi intra sinum breviter cuneata, 4–10 cm. longa 3–5 cm. lata multiplinervia nervis lateralibus furcatis, costa ramosa, in sicco tenuia, subtus pallida minute nigro-punctata, nervis hirtellis, petiolo 1–4 cm. longo crispo-hirtello; spicae axillares, juveniles 65 mm. longae 2 mm. crassae densiflorae, pedunculo 1 cm. longo hirtello; bracteae rotundo-peltatae.

Junín: Chanchamayo Valley, 1,200 meters, *Carlos Schunke 357* (herb. Field Mus. No. 571,411, type); *Killip & Smith 24809*.

Peperomia Klotzschiana Miq. Syst. 145. 1843.

A moderate-sized, hirsute herb; stem 2–3 mm. thick, branching upward; leaves 4–6 at a node, oblanceolate-subspatulate, subacute at both ends, 20–25 mm. long, 6–10 mm. wide, 3-nerved; petiole 5 mm. long; spikes numerous in the axils of the congested and reduced upper leaves, 10 mm. long, 1 mm. thick; peduncle very short; bracts round-peltate, pale-margined.

Loreto (?): Mainas, *Poeppig*, type.

Peperomia lanosa Trelease, sp. nov.

Herba modice alta vix valida stolonifero-erecta, caule 1–3 mm. crasso, internodiis longiusculis dense longipilosis; folia inferiora opposita obovato-cuneata 2 cm. longa 1.5 cm. lata longe (1 cm.) petiolata, superiora vulgo ad nodum 3–5 spathulata vel suboblonga et brevipetiolata, 3 cm. longa et 1 cm. lata vel 2 cm. tantum longa et 6 mm. lata, 3-nervia, utrinque vel supra tantum ad nervos adpresso-pilosa, petiolo dense piloso; spicae terminales et axillares 40–70 mm. longae 1 mm. crassae laxiflorae, pedunculo 1.5–2 cm. longo piloso; bracteae rotundo-peltatae; baccae ovoideae mucronatae, stigmate oblique apicali.

Huánuco: Cani near Mito, 2,550 meters, *Macbride 3450* (herb. Field Mus. No. 534,525, type).

Peperomia Lechleriana Trelease, sp. nov.

Herba majuscula glabra; folia alterna subelliptico-lanceolata utrinque acuta 14–19 cm. longa 5.5–6.5 cm. lata pinnatinervia, petiolo 2 cm. longo; spicae anguste paniculatae caudiculum scapiformem terminantes 10 mm. longae 1 mm. crassae, pedunculo brevissimo; bracteae rotundo-peltatae; baccae ellipsoideae oblique truncatae, stigmate centrali.

Puno: Sangabán, *Lechler 2375* (herb. Kew.).

Peperomia lepadiphylla Trelease, sp. nov.

Herba alpina intertexta fere glabra, caule mediocri 2–3 mm. crasso usque ad apicem foliato; folia alterna crassissima compressa V-sulcata oblique ovata acuta basi rotundata 10 mm. longa 6 mm. lata enervia ad costam plus minusve puberula, petiolo filiformi vix 5 mm. longo; spicae terminales 20 mm. longae 3 mm. crassae densiflorae, pedunculo nullo; bracteae rotundo-peltatae; ovarium ovoideum, stigmate apicali.

Lima: Río Blanco, 4,500 meters, *Macbride 3055* (herb. Field Mus. No. 534,125, type).

Peperomia leuconeura Trelease, sp. nov.

Herba modice parva assurgens, caule subgracili 2 mm. crasso crispo-pubescente; folia alterna rhombeo-elliptica utrinque subacuminata modice parva 4 cm. longa 2.5 cm. lata 3- vel obscure 5-nervia, supra ad nervos crispo-pubescentia, subtus nigro-punctulata et inter nervos albidos rubescentia, petiolo gracili 15 mm. longo glabrato; spicae axillares et terminales, juveniles 25 mm. longae 1 mm. crassae densiflorae, pedunculo brevissimo glabrato; bracteae rotundo-peltatae pallido-marginatae.

Junín: Hacienda Schunke, La Merced, 1,200 meters, *Macbride 5628* (herb. Field Mus. No. 536,667, type).

Peperomia limaensis Trelease, sp. nov.

Herba parva compacte ramosa in sicco fusca, caule 1–2 mm. crasso, internodiis brevibus dense puberulis; folia ad nodum vulgo 4 obovata utrinque rotundata parva 5 mm. longa 3 mm. lata, supra versus apicem leviter puberula, in sicco opaca non manifeste nervata, petiolo vix 1 mm. longo glabrato; spicae terminales 50 mm. longae 1 mm. crassae densiflorae, pedunculo brevissimo vix 2 mm. longo; baccae impressae ellipsoideae obtusae, stigmate subapicali.

Lima: San Gerónimo, Lima, 150 meters, *Macbride 5920* (herb. Field Mus., type).

Peperomia longepedunculata Opiz in Presl, Rel. Haenk. 164. 1831.

A rather large but slender-stemmed, glabrous herb; leaves alternate, ovate, acute or subacuminate, openly cordate, 9–13 cm. long, 7–9 cm. wide, multiple-nerved with about 6 nearly basal branches of the midrib and 2 or 3 upward, the longer nerves forking; petiole 10–15 cm. long; spikes sympodial, 40 mm. long, 2–3 mm. thick; peduncle slender, 3 cm. long.

Huánuco: Huánuco mountains, *Haenke* in 1790, type.

Peperomia longipila C. DC. Verh. Bot. Ver. Brandenb. 47: 115. 1905.

A small, suberect, long-pilose or villous herb; stem slender; leaves alternate, round-ovate or elliptic, 11 mm. long, 8 mm. wide, 3-nerved; petiole 5–10 mm. long; spikes extremely slender and loosely flowered, scarcely 10 mm. long; peduncle 10 mm. long, glabrous; bracts round-peltate; berries ellipsoid, scarcely stipitate, with a style; stigma apical.

Loreto: On cliffs, Pongo de Cainarachi, *Ule 6407*, type.

Peperomia longispica Trelease, sp. nov.

Herba modice parva assurgens ramosa, caule gracili 1–2 mm. crasso vel ad basin 4–5 mm. crasso evanescente papilloso, furfuraceo-exfoliante: folia vulgo ad nodum 4–6 primo patentia obovato-oblonga vel oblonga apice rotundata basi subacuta subsessilia parva 9–15 mm. longa 4 mm. lata supra prope apicem puberula, subtenuia, obscure pinnatinervia; spicae terminales et axillares elongatae 60–150 mm. longae 1 mm. crassae laxiflorae, pedunculo vix 1 cm. longo glabro; bracteae rotundo-peltatae: baccae globosae oblique mucronulatae, e pseudopedicellis brevibus, stigmate subapicali.

Huánuco: Muña, 2,100 meters, *Macbride 3928* (herb. Field Mus. No. 534,990, type).—Junín: Huacapistana, *Killip & Smith 24140, 24188, 24147*. Carpapata, *Killip & Smith 24342*. Carrapa, *Killip & Smith 22380, 22426*.

Peperomia Macbrideana Trelease, sp. nov.

Herba majuscula assurgens, caule crassiusculo 3–6 mm. crasso, internodiis brevibus glabratis; folia alterna vel interdum subopposita rotundo-elliptica vel orbicularia utrinque rotundata mediocria 4–6 cm. longa 3.5–5 cm. lata palmatim 5-nervia, nervis ramosis, subtus ad nervos ferrugineo-villosa, petiolo subgracili 3–8 cm. longo,

foliorum superiorum breviore; spicae ad apicem ramuli pilosi spicatim congestae, juveniles vix 5 mm. longae; bracteae rotundo-peltatae.

Huánuco: Muña, Huacachi, 1,950 meters, *Macbride 4144* (herb. Field Mus. No. 535,218, type).

Peperomia macrorhiza HBK. Nov. Gen. & Sp. 1: 72. 1815.

A small, glabrous, acaulescent herb; leaves from a (rather large?) corm, round, peltate, 6 mm. in diameter; petiole 5 cm. long; spikes as yet small; bracts round-peltate.

Cajamarca: Cajamarca, *Humboldt*, type.

Peperomia macrothyrsa Miq. Lond. Journ. Bot. 4: 419. 1845.

A glabrous, succulent, mountain herb, stoloniferous-assurgent, sometimes dwarfed; stem rather thick, naked below; leaves clustered alternately at the top of the stem, subelliptic, rather obtuse, acute-based, 20 mm. long, 10 mm. wide; petiole 1 cm. long; spikes on a prolonged, somewhat branched shoot, nearly sessile in the axils of gradually reduced leaves, 40 mm. long, 1 mm. thick; bracts round-peltate; berries round-ovoid, mucronate; stigma apical. Neg. 8385.

Amazonas: Chachapoyas, *Mathews 3228*, type.

Peperomia majalis Trelease, sp. nov.

Herba mediocris arboricola foliis ciliatis exceptis glabra, caule 4 mm. crasso, internodiis brevibus; folia alterna elliptica vel typice ovata subacuta basi rotundata vel breviter cordata prope basin peltata, 6–10 cm. longa 3.5–6.5 cm. lata graciliter multiplinervia, in sicco flavescenti-brunnea et coriacea, petiolo 2–4 cm. longo; spicae terminales ad apicem ramuli 1-bracteati geminatae 40 mm. longae 2 mm. crassae, pedunculo 1 cm. longo; bracteae rotundo-peltatae.

Junín: Dos de Mayo, Pichis Trail, 1,700–1,900 meters, *Killip & Smith 25886* (type in U. S. Nat. Herb.).

Peperomia mansericheana Trelease, sp. nov.

Herba parva repenti-assurgens arboricola, caule filiformi puberulo; folia alterna lanceolata obtusa basi acuta 18–28 mm. longa 6–7 mm. lata glabra, in sicco tenuia 1–3-nervia, petiolo 2 mm. longo; spicae terminales filiformes 40 mm. longae, pedunculo 10 mm. longo; bracteae rotundo-peltatae.

Loreto: Mouth of Río Santiago, Pongo de Manseriche, 210 meters, *Ynes Mexia 6196* (type in herb. Univ. Calif.).

Peperomia Maransara Trelease, sp. nov.

Herba procumbens, caulibus gracilibus 1–2 mm. crassis obscure adpresso-puberulis; folia acuminata basi rotundata vel subtruncato-cordulata modice parva 2.5–5 cm. longa 2–3.5 cm. lata in sicco viridia firma ciliata 5-nervia supra ad nervos primo adpresso-pubescentia, petiolo 2–5 cm. longo glabro; spicae ramulos puberulos 3–4 cm. longos prope medium 1-bracteatos terminantes 30 mm. longae 2 mm. crassae densiflorae; bracteae rotundo-peltatae; baccae fuscae oblongae, rostro fere aequilongo setaceo; stigma ad basin rostri anterius.

Cuzco: San Miguel, Urubamba Valley, 1,800 meters, *Cook & Gilbert 960* (type in U. S. Nat. Herb.).

Peperomia marcapatana Trelease, sp. nov.

Herba mediocris repenti-assurgens plus minusve ramosa glabra, caule 3–4 mm. crasso basi plus minusve lignescente; folia ad nodum 4–6 rotundo-elliptica emarginulata basi obtusa 10–15 mm. longa 6–10 mm. lata 1-nervia opaca subrevoluta, subtus granulosa, petiolo 3–5 mm. longo; spicae terminales 120 mm. longae 3 mm. crassae laxiflorae, pedunculo 15–20 mm. longo; bracteae rotundo-peltatae, floribus in alveolis insertis.

Cuzco: Marcapata, Prov. Quispicanchi, 3,000 meters, *Weberbauer 7801* (herb. Field Mus. No. 605,155, type).

Peperomia Marshalliana Trelease, sp. nov.

Herba delicata glabra repens, caule filiformi sed firmo; folia alterna obovata apice rotundata vel subtruncata basi acuta parva 10–20 mm. longa 7–12 mm. lata in sicco subcoriacea 5-nervia, petiolo brevi vix 2 mm. longo; spicae terminales ramulos breves compactifoliatos terminantes parvae 10 mm. longae 1 mm. crassae densiflorae, pedunculo spicae aequilongo; bracteae rotundo-peltatae; baccae subglobosae, stigmate obliquo.

Huánuco: Posuso, 600 meters, associated with *P. scandens*, *Macbride 4710* (herb. Field Mus. No. 551,172, type).—Junín: Chanchamayo Valley, *Carlos Schunke 460*.—San Martín: San Roque, 1,350–1,500 meters, *Williams 7382*.

Peperomia Mathewsiana Miq. Lond. Journ. Bot. 4: 423. 1845.

Erect, suffrutescent, pubescent; leaves 3–7 at a node, rhombic-spatulate, obtusely narrowed at the apex, cuneate at the base, 3 cm.

long, pellucid, 3-nerved; petiole 3–5 mm. long; spikes terminal and axillary, elongate; peduncle 5–7 mm. long; bracts round-peltate.

Huánuco: "Zacapota," Casapí, *Mathews 1688*, type.

Peperomia megalepis Trelease, sp. nov.

Herba modice parva repenti-assurgens glabra arboricola, caule subgracili 2–3 mm. crasso, internodiis brevibus; folia alterna rhombeo-elliptica vel obovata subacuta parva 1.5–3.5 cm. longa 1–2 cm. lata, in sicco opaca 5-nervia, petiolo 5–10 mm. longo; spicae terminales et axillares 70 mm. longae 2 mm. crassae sublaxiflorae, pedunculo fere 2 cm. longo; bracteae magnae 1 mm. latae rotundo-peltatae.

Huánuco: Trail to Tambo de Vaca, Muña, 2,400 meters, *Macbride 4275* (herb. Field Mus. No. 535,357, type).

Peperomia mercedana C. DC. Bot. Jahrb. 40: 299. 1908.

A rather large, glabrous herb; leaves alternate, subrhombic-obovate, blunt-acuminate, cuneate at the base, 8–9 cm. long, 3.5–4 cm. wide, pinnately nerved; petiole barely 1 cm. long; spikes solitary in the axils on a slender stalk, or 2 or 4 on a similar terminal stalk 3–4 cm. long; bracts round-peltate; ovary obovoid, obliquely beaked; stigma anterior.

Junín: La Merced, *Weberbauer 1882*, type.

Peperomia mercedana var. **carpapatana** Trelease, var. nov.

Folia subrhombeo-obovata acutiuscule acuminata basi longi-cuneata 11 cm. longa 5 cm. lata, petiolo 1–2 cm. longo.

Junín: Carpapata above Huacapistana, 2,700–3,200 meters, *Killip & Smith 24485* (type in U. S. Nat. Herb.).

Peperomia metallica Lind. & Rod. Ill. Hort. 39: 79. *pl. 557*. 1892.

A much-branched, succulent, glabrous herb with short, pellucid, pinkish internodes; leaves lanceolate or lance-ovate, the narrowed apex obtuse, rather obtuse-based, only 2 cm. long and 1 cm. wide, or 6 cm. long and 2 cm. wide, pinnately nerved, bronzed, with pale center above, drying opaque; petiole barely 5 mm. long; spikes terminal, slender, 25–40 mm. long, rather loosely flowered; bracts round-peltate; ovary ovoid, submucronate; stigma oblique.

Type collected in Peru.

A very beautiful plant, now in cultivation, its exact home not recorded.

Peperomia microlepis Trelease, sp. nov.

Herba subparva suberecta glabra, caule 2–3 mm. crasso; folia alterna subrhombeo-elliptica vel obovata emarginulato-acuminata basi acuta 3–4 cm. longa 2 cm. lata 5–7-nervia in sicco subfirma, subtus pallida, petiolo 5 mm. longo; spicae terminales 40 mm. longae 1 mm. crassae sublaxiflorae, pedunculo filiformi 15 mm. longo; bracteae rotundo-peltatae crispae.

Junín: Huacapistana, *Stevens 91* (type).

Peperomia micromamillata Trelease, sp. nov.

Herba subparva caespitosa succulenta in sicco fusca, caule 1–3 mm. crasso, internodiis brevibus primo velutinis cito furfuraceo-exfoliantibus; folia congesta ad nodum circa 6 elliptica utrinque subobtusa parva 8 mm. longa 3 mm. lata carnosissima opaca 1-nervia subtus microscopice mamillata apice ciliato-barbata, petiolo brevissimo vix 1 mm. longo; spicae (terminales?) 60 mm. longae 1 mm. crassae laxiflorae, pedunculo vix 10 mm. longo; bracteae rotundo-peltatae; ovaria ovoidea, stigmate subapicali.

Huánuco: Huacachi near Muña, 1,950 meters, *Macbride 3872* (herb. Field Mus. No. 534,935, type). Piedra Grande, 1,500 meters, *3687*.

Peperomia milvifolia Trelease, sp. nov.

Herba subparva suberecta in statu juvenili papillosa, caule 2 mm. crasso; folia ad nodum vulgo 4 rhombeo-quadrata vel milviformia subacuta basi cuneata 10–11 mm. longa 8 mm. lata 3-nervia in sicco modice tenuia viridia, petiolo 1 mm. longo; spicae terminales et ex axillis superioribus graciles ad 100 mm. longae, pseudopedicellis longis filiformibus; bracteae rotundo-peltatae.

Type from Santa Cruz, 1,800–2,100 meters, *Pearce*, December, 1864 (herb. Kew.). There is some doubt as to whether the locality is Peruvian or Bolivian.

Peperomia minuta A. W. Hill, Ann. Bot. 21: 159. *pl. 15.* 1907.

A small, glabrous, acaulescent herb resembling *P. parvifolia;* leaves 2–3.5 mm. in diameter; berries subellipsoid, minutely punctulate-roughened; stylopodium short-conic-cylindric.

Ancash: Ocros to Chonta, *Weberbauer 2776*, type.—Cuzco: Paucartambo Valley, 3,500 meters, *Herrera 1387*.

Peperomia mishuyacana Trelease, sp. nov.

Herba majuscula repens glabra vel ad nodos parce puberula, caule 2–8 mm. crasso; folia opposita vel ternata ovata subobtuse acuminata basi acuta 5–6 cm. longa 2.5–3 cm. lata 3–5-nervia in sicco subtenuia opaca, subtus olivacea minute granulosa, petiolo 5 mm. longo; inflorescentia non visa.

Loreto: Mishuyacu, 100 meters, *G. Klug 582* (herb. Field Mus. No. 630,002, type).

Peperomia modicilimba C. DC. Bot. Jahrb. 40: 258. 1908.

A rather small, stoloniferous-ascending, often branched, glabrous herb; leaves alternate, round-ovate or elliptic-ovate, acuminate, acute-based, 1.5–3 cm. long, 1–1.5 cm. wide, 5-nerved; petiole 1 cm. long; spikes terminal, 80 mm. long, 1 mm. thick; peduncle 15–30 mm. long; bracts round-peltate; ovary obovoid, contracted at the base, apiculate; stigma subapical.

Puno: Tambo Frilluma, on rocks, 1,000 meters, *Weberbauer 1211*, type.

Peperomia monostachya R. & P. Fl. 1: 33. 1798. *Piper monostachyum* Vahl, Enum. 1: 343. 1805.

A rather large, glabrous, assurgent herb; leaves alternate, ovate or subobovate, obtuse at both ends, 5–7-nerved, purple beneath and lined by the nerves; spikes solitary.

Huánuco: Chinchao, *Ruiz & Pavón*, type.

An obscure species, apparently closely related to *P. procumbens*.

Peperomia montana C. DC. in DC. Prodr. 16, pt. 1: 426. 1869.

A small, repent-assurgent or erect, glabrous herb; stem slender, simple; leaves alternate, lanceolate-oblanceolate or obovate, acute or obtuse at both ends, 2.5–6.5 cm. long, 1.5–2.5 cm. wide, 5-nerved with the inner nerves somewhat confluent; petiole 5–10 mm. long; spikes terminal, 70 mm. long, 1 mm. thick; peduncle 15–20 mm. long; bracts round-peltate; ovary ovoid, somewhat beaked; stigma oblique. Neg. 8532.

Type from subandine Peru, *Poeppig D1519*.

Peperomia multiformis Trelease, sp. nov.

Herba delicata repenti-assurgens, caule filiformi crispo-pubescente vel subvilloso; folia alterna, stolonum orbicularia et 5 mm. lata, ramulorum adscendentium obovata et vix 10 mm. longa vel

elliptica, utrinque plus minusve acuta, glabrata vel subtus crispo-pubescentia et glanduloso-granulosa, petiolo vix 5 mm. longo; spicae terminales filiformes 40–70 mm. longae, pedunculo vix 1 cm. longo.

San Martín: Tarapoto, *Spruce 4011* (type in herb. Kew.).

Peperomia muscigaudens C. DC. Bot. Jahrb. 40: 267. 1908.

A small, glabrous epiphyte; stem filiform; leaves 3 or 4 at a node, obovate, slightly retuse, 8 mm. long, 6 mm. wide, 5-nerved; spikes terminal, 20 mm. long, 1 mm. thick; peduncle 1 cm. long; bracts round-peltate; berries ovoid, pointed, striatulate; stigma apical.

Puno: Sandía, in bamboo thickets, 2,500–3,000 meters, *Weberbauer 736*, type.

Peperomia naevifolia Trelease, sp. nov.

Herba subparva stolonifera terrestris, caulibus plus minusve ramosis erectis in sicco angulosis; folia ad nodum 3–4 lanceolato-elliptica vel subobovata obtusa basi acuta 10–12 mm. longa 5–10 mm. lata, subtus granulosa et papillis apice setiformibus conspersa, obscure circa 3-nervia, petiolo 1–2 mm. longo; spicae terminales(?) 20 mm. longae 1 mm. crassae, pedunculo aequilongo; bracteae rotundo-peltatae, rhachi velutina.

Junín: Huacapistana, 1,800 meters, *Killip & Smith 24278* (type in U. S. Nat. Herb.).

Peperomia naviculaefolia Trelease, sp. nov.

Herba alpina parva vix ramosa glabra, caule 5 mm. crasso inferne dense foliato, scapo remote bracteato terminato; folia alterna crassissima profunde V-sulcata vel cymbiformia, oblique lanceolato-elliptica, 15 mm. longa 7 mm. lata, utrinque acuta, enervia vel obscurissime 3-nervia granulosa, petiolo gracili 5 mm. longo; spicae plures ad apicem scapi paniculatae 40 mm. longae 2 mm. crassae laxiflorae, pedunculo 5 mm. longo; bracteae rotundo-peltatae; ovarium ovoideum, stigmate apicali.

Junín: Huariaca, 2,850 meters, *Macbride 3253* (herb. Field Mus. No. 534,323, type).

Peperomia nigricans Trelease, sp. nov.

Herba mediocris plus minusve ramosa erecta, caule 3–4 mm. crasso crispo-pubescente; folia alterna rotundo-ovata utrinque abrupte subacuta 3.5–4 cm. longa 3–4 cm. lata graciliter 5-nervia, costa obscure ramosa, in sicco fusca tenuia opaca, subtus nigro-

granulosa et praesertim ad nervos crispo-pubescentia, petiolo 1–3 mm. longo crispo-pubescente; inflorescentia non visa.

Junín: La Merced, 700 meters, *Killip & Smith 23674* (type in U. S. Nat. Herb.).

Peperomia nigro-oculata Trelease, sp. nov.

Herba parva repenti-assurgens, caule gracili plus minusve piloso; folia vulgo quaternata rotundo-rhombea obtuse acuminata basi acuta 8 mm. longa 6–8 mm. lata obscure 1–3-nervia, subtus sparse puberula, utrinque punctulis centro nigris vel papillis conspersa, petiolo 1 mm. longo paullo piloso; spicae terminales, juveniles 10 mm. longae 1 mm. crassae, rhachi velutina, pedunculo 15 mm. longo sparse piloso; bracteae rotundo-peltatae.

Amazonas: Chachapoyas, *Mathews 3231* (type).—Junín: Porvenir, *Killip & Smith 25931*. Eneñas, *Killip & Smith 25653*(?). Yapas, *Killip & Smith 25510*(?), *25517*(?).—Huánuco: Piedra Grande, 1,500 meters, on mossy trees, *3859*.

Peperomia nivalis Miq. Syst. 112. 1843; Ill. Piper. *pl. 9;* Arch. Soc. Phys. Nat. 23: *pl. 4*.

A small, succulent, glabrous herb; stem rather thick below and naked; leaves alternate above, dolabriform, submucronate, cuneate at the base, only 10–20 mm. long and 5 mm. wide, grooved at the top; petiole nearly suppressed; spikes several in a narrow panicle on a slender terminal stalk 1–2 cm. long, scarcely 10 mm. long and 1 mm. thick; peduncle very short; bracts round-peltate; berries ovoid, apiculate; stigma apical.

Type collected at some unknown locality in the high mountains near the limit of snow, *Philippi*.—Huánuco: Tomaiquichua near Ambo, 2,550 meters, *2412*.—Without locality, *Weberbauer 1721, 2416*.

Peperomia non-alata Trelease, sp. nov.

Herba mediocris simplex erecta glabra, caule 3 mm. crasso non alato; folia alterna lanceolata apice longiattenuata basi acuta 7–9 cm. longa 2–2.5 cm. lata 5-nervia, costa obscure ramosa, in sicco obscure viridia subopaca, petiolo 5 mm. longo; spicae terminales et ex axillis superioribus graciles 90 mm. longae, pedunculo 10 mm. longo; bracteae rotundo-peltatae.

San Martín: San Roque, 1,350–1,500 meters, *Llewelyn Williams 7708* (herb. Field Mus. No. 629,575, type). "Sacha-chullcu."

Peperomia non-hispidula Trelease, sp. nov.

Herba delicata prostrata glabra, caule gracili; folia alterna subrhombea utrinque subacuta minuta 10 mm. longa 7 mm. lata subpinnatim circa 7-nervia, petiolo brevissimo 1–2 mm. longo; spicae ex axillis superioribus solitariae filiformes minutae vix 5 mm. longae laxe pauciflorae; bracteae rotundo-subpeltatae; ovarium lageniforme sublonge attenuatum, stigmate apicali; baccae subrotundatae utrinque contractae subalveolatae.

Lima: Lurín, 60 meters, *Macbride 5967* (herb. Field Mus. No. 536,971, type).

Peperomia obcordata Presl, Epim. Bot. 223. 1849.

A rather small, glabrous herb; leaves 4 at a node, obcordate, ciliate-emarginulate, acute-based, 12 mm. long, 6 mm. wide, 1-nerved; petiole very short; spikes terminal, 25 mm. long, apiculate; peduncle of equal length; bracts round-peltate; berries round-ovoid, with pseudocupule; stigma apical.

Type from mountains of Peru.

Peperomia obcordatifolia Trelease, sp. nov.

Herba parva glabra repenti-assurgens, caule filiformi; folia alterna apice caulis congesta obovata plus minusve emarginulata basi acuta 10 mm. longa 8 mm. lata 3-nervia, petiolo brevissimo; spicae terminales 15 mm. longae 1 mm. crassae, pedunculo vix 10 mm. longo; bracteae rotundo-peltatae; baccae rotundo-ovoideae oblique apicatae, stigmate subapicali.

San Martín: Cerro de Campana, *Spruce* (type in herb. Kew.).

Peperomia Obex Trelease, sp. nov.

Herba majuscula plus minusve ramosa stolonifero-assurgens glabra, caule 2–3 mm. crasso interdum versus basin crassissimo; folia alterna lanceolato-ovata acuminata basi acuta 3–5 cm. longa 1.5–2 cm. lata conspicue 5-nervia et nigro-punctata, in sicco tenuia purpurascentia, petiolo 5–10 mm. longo; spicae terminales et ex axillis superioribus 25 mm. longae breviter pedunculatae.

Huánuco: Muña, *Macbride 3992* (herb. Field Mus. No. 535,056, type).

Peperomia obliqua R. & P. Fl. 1: 32. *pl. 51.* 1798. *Piper obliquum* Pers. Syn. 1: 35. 1805.

A moderately large, ascending, glabrous herb; leaves alternate, subrhombic-oblanceolate, acuminate, cuneate at the base, 5–6 cm.

long and 2–3 cm. wide, pinnately nerved; petiole barely 1 cm. long; spikes 3 or 4 each on short, terminal or sympodial stalks, 2–3 mm. thick, 50 mm. long; peduncle 1 cm. long.

Huánuco: Cochero, Posuso, and Pillao, *Ruiz & Pavón*, type.—Department unknown: Callcan, *Pearce* in 1868 (Kew).

Peperomia obruenda Trelease, sp. nov.

Herba subparva erecta glabra, caule 1–2 mm. crasso; folia obovato-oblanceolata obtusa ad acuminata basi cuneata 3.5–4.5 cm. longa 1.5–2 cm. lata pinnatim fere e basi circa 7-nervia, in sicco chartacea, subtus pallidiora, petiolo gracili 10 mm. longo; spicae terminales et ex axillis superioribus 60 mm. longae 2 mm. crassae densiflorae, pedunculo filiformi 2–3 cm. longo; bracteae rotundo-peltatae undulatae.

Junín: Hacienda Chalhuapuquio, *Stevens 202* (type).

Peperomia ollantaitambona Trelease, sp. nov.

Herba subparva adscendens succulenta, caule 2–3 mm. crasso, internodiis brevibus dense papilloso-puberulis; folia plerumque opposita elliptica obtusa vel abrupte obtuse breviacuminata basi acuta 1.5–3 cm. longa 1–2 cm. lata delicate 5-nervia, costa obscure ramosa, in sicco tenuia pellucida, petiolo 5 mm. longo; spicae terminales et ex axillis supremis 25 mm. longae 1 mm. crassae laxiflorae, pedunculo 1 cm. longo; bracteae rotundo-peltatae.

Cuzco: Ollantaitambo, 2,300–3,100 meters, *F. W. Pennell 13661* (type in herb. Acad. Nat. Sci. Phila.).

Peperomia Opiziana A. Dietr. Sp. Pl. 1: 162. 1831. *Peperomia cordifolia* Opiz in Presl, Rel. Haenk. 164. 1831. *Piper Opizianum* D. Dietr. Encycl. 1: 122. 1841.

A slender, glabrous, spreading herb; leaves alternate, round-ovate, abruptly short-acuminate, openly shallow-cordate, 5.5–7.5 cm. long, 4.5–6.5 cm. wide, 7-nerved with the costa and upper nerves 1-branched upward; petiole 2–5 cm. long; spikes sympodial, 40 mm. long, 2 mm. thick; peduncle slender, 7–10 cm. long; bracts round-peltate; berries round-ovoid, mucronate; stigma oblique.

Type from Peru, *Haenke* in 1790.

Very near *P. longepedunculata*.

Peperomia oxyphylla C. DC. Bot. Jahrb. 40: 260. 1908.

A glabrous, slender-stemmed herb; leaves alternate, lance-elliptic, acute at both ends, 4–7 cm. long, 1.5–2 cm. wide, 5-nerved with the

inner nerves somewhat confluent below; petiole 5 mm. long; spikes axillary and terminal, subfiliform, 150–200 mm. long; peduncle 1 cm. long; bracts round-peltate; berries round, apiculate; stigma subapical.

Junín: La Merced, Chanchamayo Valley, 1,000 meters, *Weberbauer 1854*, type.

Peperomia pachiteana Trelease, sp. nov.

Herba repens vel pendula epiphytica ramis evanescente minute crispo-pubescentibus exceptis glabra; folia alterna ovata acuminata basi rotundata vel fere truncata 5–7 cm. longa 3–3.5 cm. lata obscure pinnatinervia, in sicco tenuia opaca fusca, petiolo 1 cm. longo; spicae ramulum brevem 2-bracteatum terminantes geminatae 25 mm. longae 1 mm. crassae breviter pedunculatae.

Huánuco: Puerto Lira, on Río Pachitea, 300 meters, *Killip & Smith 26831* (type in U. S. Nat. Herb.).

Peperomia Pakipski C. DC. Bot. Jahrb. 40: 258. 1908.

A spreading, glabrous epiphyte, the stem 2 mm. thick; leaves 4 or 5 at a node, oblong-obovate, emarginulate, acute-based, 10–20 mm. long, 12 mm. wide, 3–5-nerved; petiole 5 mm. long; spikes terminal, 130 mm. long, 2 mm. thick; bracts round-peltate; berries oblong-ovoid, with a style; stigma apical.

Puno: Between Sandía and Cuyocuyo, 2,000 meters, *Weberbauer 869*, type.

Peperomia palcana C. DC. Bot. Jahrb. 40: 266. 1908.

An erect, glabrous, branching, succulent herb; stem 4 mm. thick, with approximate leaf scars below; leaves 4 or 5 at a node, oblong-obovate, emarginulate, acute-based, 12 mm. long, 7 mm. wide, 1-nerved, the petiole very short; spikes terminal, 70 mm. long, 2 mm. thick; peduncle 10 mm. long; bracts round-peltate; berries oblong (with pseudocupule?); stigma apical.

Junín: Below Palca, on cliffs, 2,500 meters, *Weberbauer 1754*, type.

Peperomia pampalcana Trelease, sp. nov.

Herba alta furcata vel divaricato-ramosa succulenta, caule 3–5 mm. crasso sparse rigido-villoso; folia opposita vel rare ternata elliptica vel rotundo-ovata obtuse breviacuminata basi rotundata vel subacuta 4 cm. longa 3.5 cm. lata, superiora 1.5 cm. longa 1 cm. lata vel ad ramulos ultimos floriferos 8 mm. longa et 5 mm. lata, 3- vel longiora 5-nervia in sicco firma brunnea, subtus flavescentia laxe

villosa, petiolo 1 cm. longo vel in foliis reductis multo breviore subvilloso; spicae in axillis foliorum reductorum solitariae et quoque terminales in ramulis brevibus insertis et ut videtur subpaniculatae, 40–60 mm. longae 3 mm. crassae, pedunculo 10–15 mm. longo sparse piloso; bracteae rotundo-peltatae; baccae ovoideae acutatae pseudocupula onustae, stigmate apicali.

Ayacucho: Pampalca, 3,200 meters, *Killip & Smith 23282* (type in U. S. Nat. Herb.).

Peperomia parva Trelease, sp. nov.

Herba parva epiphytica erecta glabra; folia alterna obovata apice rotundata basi acuta 15 mm. longa 10–12 mm. lata pinnatinervia in sicco coriacea opaca, petiolo 5 mm. longo; spicae terminales 30 mm. longae 2 mm. crassae, pedunculo duplo breviore.

Junín: Dos de Mayo, Pichis Trail, 1,700–1,900 meters, *Killip & Smith 25881* (type in U. S. Nat. Herb.).

Peperomia parvifolia C. DC. Journ. Bot. 4: 133. 1866; Dahlst. Svensk. Vet. Akad. Handl. 33, pt. 2: *pl. 1;* Hill, Ann. Bot. 20: *pl. 29.*

A small, glabrous, acaulescent herb; leaves from a subglobose corm rooting from the bottom, round or subdeltoid, 5–7 mm. long, peltate below the middle; petiole 15–25 mm. long; spikes 4–5 mm. long, closely flowered; peduncle 20 mm. long; bracts subelliptic-peltate; berries subellipsoid, verrucose; stylopodium short-conic; stigma apical.

Type from Peru, *Pavón,* doubtless at very high elevations. High mountains of Bolivia.

Peperomia parvipunctulata Trelease, sp. nov.

Herba modice parva suffrutescens ramosa glabra, caule geniculato 3 mm. crasso, internodiis brevibus; folia alterna oblanceolata utrinque acuta 5–7 cm. longa 2–3 cm. lata e dimidio inferiore pinnatinervia minute granulosa, in sicco tenuia opaca, petiolo 5–10 mm. longo; spicae terminales et ex axillis superioribus 50 mm. longae 1 mm. crassae, pedunculo 5–10 mm. longo; bracteae rotundo-peltatae.

San Martín: San Roque, 1,350–1,500 meters, *Llewelyn Williams 7145* (herb. Field Mus. No. 623,573, type).

Peperomia Pavoniana C. DC. in DC. Prodr. 16, pt. 1: 460. 1869.

An herb with puberulent nodes and leaf nerves; leaves 2–4 at a node, lance-elliptic, 6 cm. long, 3–5-nerved; petiole 15 mm. long;

spikes axillary, filiform; peduncle 8–10 mm. long; berries globose, hirtellous.

Type from Peru, *Pavón.*

Peperomia Pearcei Trelease, sp. nov.

Herba gracilis ramosa glabra; folia ad nodum circa 3 obovata apice rotundata basi cuneata 8 mm. longa 5 mm. lata 1-nervia, pedunculo brevi; spicae terminales 30–40 mm. longae 1 mm. crassae, pedunculo 1 cm. longo; bracteae rotundo-peltatae; baccae ovoideae acutatae pseudocupula onustae, stigmate apicali.

Huánuco: Muña, in 1863, *Pearce 166* (type in herb. Kew.).

Peperomia pellucida (L.) HBK. Nov. Gen. & Sp. 1: 64. 1815. *Piper pellucidum* L. Sp. Pl. 30. 1753; Hort. Cliff. *pl. 4;* Philip. Journ. Sci. 43: 218. *f. 117. Micropiper pellucidum* Miq. Comm. Phyt. 54. 1840. *Piper concinnum* Haw. Succ. Rev. 198. 1821. *Peperomia concinna* A. Dietr. Sp. Pl. 1: 164. 1831. *Peperomia pellucida* var. *pygmaea* Kunth, Syn. 1: 117. *P. pellucida* var. *minor* Van Heurck & Muell. Obs. Bot. 115. 1870.

A pellucid, erect, more or less branched, succulent, annual herb; leaves round-ovate, obtusely short-acuminate, rounded, truncate, or subcordate at the base, 1.5–2.5 cm. long, 1–2.5 cm. wide, or even larger, 3–5-nerved, thin, often pale or whitened beneath; petiole 5 mm. to as much as 20 or 30 mm. long; spikes terminal, axillary, and sympodial, filiform, 20–30 mm. long, loosely flowered; petiole 1 cm. long; bracts round-peltate; berries round-ovoid, mucronate, longitudinally ridged; stigma apical.

Loreto: Puerto Arturo, 200 meters, *Williams 5128.* Iquitos, abandoned land, *Williams 7925; Killip & Smith 27497.* Santa Rosa, *Killip & Smith 28869.* La Victoria, *Williams 2730.* Río Itaya, *Williams 243.* Mishuyacu, in clearing, *Klug 1210.* Fortaleza, *Williams 4460.* Lower Río Nanay, *Williams 275.* A species of cosmopolitan distribution in the tropics. "Sacha-yuyu."

Peperomia percalvescens Trelease, sp. nov.

Herba pendula hic inde transiente paullo crispo-sericea, caule firmo 2–3 mm. crasso; folia alterna ovata subobtusa basi rotundata vel obscure cordulata 4 cm. longa 2 cm. lata pinnatinervia in sicco coriacea opaca, subtus brunnea, petiolo 5–10 mm. longo; spicae solitariae terminales vel ramulum decidue 2-bracteatum 1 cm. longum terminantes graciles 150 mm. longae, in statu fructifero 5 mm.

crassae, pedunculo 10 mm. longo; bracteae rotundo-peltatae; baccae oblongae oblique acuto-scutulatae, stigmate centrali.

San Martín: Cumbasa, Tarapoto, 360–900 meters, *Llewelyn Williams 5758* (herb. Field Mus. No. 624,780, type).

Peperomia pereneana Trelease, sp. nov.

Herba succulentissima procumbens terrestris plus minusve sparse transiente molliter pubescens, caule 3–5 mm. crasso; folia alterna ovata acuminata basi rotundata vel obscure cordulata 4.5–6 cm. longa 2.5–3.5 cm. lata obscure pinnatinervia, in sicco coriacea opaca, subtus flavescentia, petiolo 1 cm. longo; spicae terminales et sympodiales solitariae vel geminatae et ramulos longibracteatos terminantes, in statu juvenili parvae.

Junín: Colonia Perené, 680 meters, *Killip & Smith 25413* (type in U. S. Nat. Herb.).

Peperomia pergamentacea Trelease, sp. nov.

Herba majuscula repens glabra, caule 3 mm. crasso, internodiis elongatis; folia alterna ovata acute acuminata basi breviter cordata vel rotundata, interdum abrupte acuta, 10–15 cm. longa 6–12 cm. lata submultiplinervia, 3 paribus nervorum lateralium prope basin nascentibus, pare altero versus medium laminae subpergamentaceae nascente, petiolo 5–15 cm. longo; inflorescentia non visa.

Junín: San Nicolás, Pichis Trail, 1,100 meters, *Killip & Smith 26063* (type in U. S. Nat. Herb.).

Peperomia perhispidula C. DC. Bot. Jahrb. 40: 257. 1908. *P. hispidula* var. *perhispidula* C. DC. Candollea 1: 335, 392. 1925.

A small, suberect herb; stem slender, hispidulous-canescent; leaves alternate, subreniform-ovate, 13 mm. wide, 11 mm. long, densely hispidulous; petiole scarcely 5 mm. long; spikes sympodial, 10–15 mm. long, 1 mm. thick, the peduncle as long; bracts round-peltate; berries ellipsoid, stipitate, with a style; stigma apical.

Junín: Above Huacapistana, road to Palca, moist shaded cliffs, 2,000 meters, *Weberbauer 2014*, type. Pariahuanca, 2,400 meters, *Weberbauer 6592*. Huacachi, 1,950 meters, *4152*.

Peperomia perhispidula var. **glabrescens** Trelease, var. nov.

In statu juvenili subconspicue hispidula, serius fere glabra.

Cuzco: Below Pillahuata, Río Yanamayo, 2,000–2,300 meters, *Pennell 14076* (type in herb. Acad. Nat. Sci. Phila.).

Peperomia pertomentella Trelease, sp. nov.

Herba majuscula diffusa terrestris sparse ramosa ferrugineo-tomentulosa; folia alterna ovata plus minusve acuminata basi rotundata vel subcordulata 4–6 cm. longa 2.5–4 cm. lata obscure pinnatinervia, in sicco brunnea coriacea, petiolo 1–2 cm. longo; spicae sympodiales 1 vel 2 ramulum bibracteatum 1 cm. longum terminantes 90–100 mm. longae 1 mm. crassae, pedunculo 10–15 mm. longo; baccae oblongae apice angustatae scutulatae, stigmate centrali.

San Martín: Río Mayo, Tarapoto, 360–900 meters, *Llewelyn Williams 6202* (herb. Field Mus. No. 623,588, type), *6204*.

Peperomia peruviana (Miq.) Dahlst. Svensk. Vet. Akad. Handl. 33, pt. 2: 32. 1900; Hill, Ann. Bot. 20: *pl. 29*. *Tildenia peruviana* Miq. Nov. Act. Nat. Cur. 19: Suppl. 483. 1843.

A small, glabrous, acaulescent herb; leaves from a corm rooting from the sides as well as from the bottom; leaves round, 1–2 cm. in diameter, peltate at the center, thin; petiole 2–5 cm. long; spikes 2–6 cm. long; peduncle elongate; bracts round-ovate, subacute; berries ellipsoid, minutely reticulate; stylopodium elongate-conic; stigma apical.

Puno: Lake Titicaca, *Gaudichaud 150*, type. Araranca, rock ledges on open slope, 4,200 meters, *Pennell 13451*.—Huánuco: Chasqui, on mossy rocks, *3305*.—Lima: Matucana, 2,400 meters, *2894*. Río Blanco, *Killip & Smith 21539*.—Loreto: Santa Rosa, *Killip & Smith 28869*.

Peperomia peruviana var. **major** A. W. Hill, Ann. Bot. 21: 151. 1907.

Leaves 30–35 mm. in diameter, thin-coriaceous, peltate at the middle; petiole 8–14 cm. long; spikes 80 mm. long; peduncle 10 cm. long; berries ovoid-conic.

Cuzco: Ollantaitambo, Urubamba, at 2,500 meters, *Hill 183*, type.

Peperomia phyllantha Opiz in Presl, Rel. Haenk. 162. 1831.

A small, erect, somewhat branched herb, glabrous except for a few soft thick hairs on the upper leaf surface; leaves few, alternate at the end of the stem, round-ovate, acuminate, cordate, 2–2.5 cm. long, 1.5–2 cm. wide, 5–7-nerved with some nerves branching; petiole 1–2 cm. long; spikes umbellately clustered at the end of the

peduncle, 10 mm. long, 1 mm. thick, nearly sessile, distichously flowered; bracts round-peltate; berries subglobose, mucronate; stigma apical.

Type from mountains of Peru, *Haenke.*

Peperomia pichisensis Trelease, sp. nov.

Herba parva repens epiphytica, ramis erectis, caule gracili minute molliter villoso; folia alterna rotundata, rotundo-obovata vel elliptica obtusa vel longiora subacuta basi acuta 5–14 mm. longa 5–7 mm. lata supra crispo-subvillosa obscure 3-nervia, petiolo 3–5 mm. longo glabro; spicae terminales 30–40 mm. longae 1 mm. crassae, pedunculo brevissimo; bracteae rotundo-peltatae.

Junín: Dos de Mayo, Pichis Trail, 1,700–1,900 meters, *Killip & Smith 25829* (type in U. S. Nat. Herb.).

Peperomia pilifera Trelease, sp. nov.

Herba mediocris simplex suberecta, caule 1–2 mm. crasso plus minusve laxe villoso; folia alterna, inferiora obovata, superiora sublanceolata, utrinque subacuta 15–30 mm. longa 6–15 mm. lata minute pubescentia 3–5-nervia, petiolo 3–10 mm. longo laxe piloso; spicae terminales et axillares filiformes 20–30 mm. longae, pedunculo gracillimo 10 mm. longo subvilloso; bracteae rotundo-peltatae; baccae rotundato-ovoideae mucronatae, stigmate subapicali.

Huánuco: Cani, 2,550 meters, *Macbride 3460* (herb. Field Mus. No. 534,535, type).

Peperomia pillahuatana Trelease, sp. nov.

Herba mediocris assurgens erecta glabra, caule 4–5 mm. crasso repetite furcato furfuraceo-exfoliante; folia opposita vel ad nodos superiores 3–4 obovata emarginulata basi cuneata 8–20 mm. longa 8–14 mm. lata opaca coriacea, subtus granulosa, petiolo 3–10 mm. longo; spicae terminales 80 mm. longae 2–3 mm. crassae, pedunculo 10–15 mm. longo; bracteae rotundo-peltatae; ovaria in alveolis inserta.

Cuzco: Near Río Yanamayo, below Pillahuata, 2,000–2,300 meters, *F. W. Pennell 14074* (herb. Field Mus. No. 558,291, type).

Peperomia pilosa R. & P. Fl. 1: 32. *pl. 50.* 1798. *Piper pilosum* Vahl, Enum. 1: 338. 1805.

An ascending herb, glabrous except for a few conspicuous soft hairs on the upper leaf surface; stem 2 mm. thick; leaves alternate, oblong, acuminate, inequilaterally cordate-auricled, 5–8 cm. long,

2 cm. wide, pinnately nerved, black-dotted beneath; petiole 1 cm. long; spikes terminal, 40 mm. long, 2 mm. thick; peduncle barely 1 cm. long; bracts round-peltate; ovary mucronate; stigma anterior at base of the mucro (?).

Huánuco: Posuso, *Ruiz & Pavón*, type.

Peperomia pinedoana Trelease, sp. nov.

Herba majuscula glabra, caule 2–5 mm. crasso; folia alterna late ovata acuminata basi subtruncato-rotundata sed ad petiolum abrupte decurrentia 10–14 cm. longa 7–10 cm. lata palmatim 9-nervia, nervis lateralibus tantum ramosis, in sicco tenuia viridia, petiolo 5–11 cm. longo; spicae sympodiales 50 mm. longae 3 mm. crassae, pedunculo gracili 4 cm. longo; bracteae rotundo-peltatae; ovarium rotundatum, stigmate subapicali.

Junín: Río Pinedo north of La Merced, 700–900 meters, *Killip & Smith 23620* (type in U. S. Nat. Herb.).

Peperomia playapampana Trelease, sp. nov.

Herba parva glabrata, caule filiformi, stolonifero-assurgens plus minusve caespitosa; folia alterna oblonga vel oblongo-ovata apice paullo attenuato obtusa vel obscure emarginulata basi rotundata parva 8–10 mm. longa 3–5 mm. lata 1-nervia utrinque plus minusve transiente pilis paucis mollibus praesertim versus apicem conspersa, subtus pallido-granulosa, petiolo brevissimo 1 mm. longo; spicae terminales parvae 20 mm. longae 1 mm. crassae, adultae laxiflorae, pedunculo filiformi 5–10 mm. longo; bracteae rotundo-peltatae; baccae sessiles ovoideae submucronatae, stigmate apicali.

Huánuco: Playapampa, 2,700 meters, *Macbride 4496* (herb. Field Mus. No. 535,582, type).

Peperomia pleiomorpha Trelease, sp. nov.

Herba parva stolonifero-assurgens epiphytica, caule 1 mm. crasso laxe minute piloso; folia alterna stolonum rotundo-obovata minuta, ramorum floriferorum gradatim majora et elliptico-ovata vel lanceolata 10–15 mm. longa 3–10 mm. lata obtusa basi subacuta minute adpresso-pubescentia, vel majora tantum ciliata, obscure 3–5-nervia, petiolo 3–5 mm. longo laxe pubescente; spicae 30 mm. longae 1 mm. crassae, floribus densiuscule insertis, pedunculo filiformi 5–10 mm. longo plus minusve pubescente; bracteae rotundo-peltatae.

Junín: Puerto Bermúdez, 375 meters, *Killip & Smith 26426* (type in U. S. Nat. Herb.).

Peperomia plicatifolia Trelease, sp. nov.

Herba subparva glabra stolonifero-assurgens, caule gracili; folia alterna lanceolata vel lanceolato-oblonga utrinque subacuta 15 mm. longa 4–5 mm. lata e parte inferiore pinnatinervia vulgo plicata coriacea flavescentia, petiolo brevissimo; spicae terminales 30 mm. longae 1 mm. crassae, pedunculo 10 mm. longo; bracteae rotundo-peltatae; baccae piriformes curvae stipitatae; stigma subapicale.

Puno: Sangabán, *Lechler 2231* (type in herb. Kew.).

Peperomia plurispica Trelease, sp. nov.

Herba mediocris stolonifera assurgens, caule 2–3 mm. crasso vel ad basin multo crassiore crispo-piloso; folia ad nodum vulgo 4–5 elliptico-oblonga utrinque subacuta subparva 15–30 mm. longa 5–10 mm. lata supra glabrata, subtus ad nervos crispo-pilosa et plus minusve conspicue nigro-punctulata, petiolo brevi 2–3 mm. longo crispo-piloso; spicae terminales et axillares filiformes 100 mm. longae et ultra 1 mm. crassae laxiflorae, pedunculo 2.5 cm. longo adpresso-villoso; bracteae rotundo-peltatae majusculae; ovaria immersa ovoidea, stigmate subapicali.

Huánuco: Cani near Mito, 2,550 meters, *Macbride 3414* (herb. Field Mus. No. 534,485, type).

Peperomia Poeppigii Miq. Syst. 84. 1843.

Glabrous except for the leaves, which are ciliate and obscurely puberulent on the nerves beneath, rooting from the nodes; leaves alternate, succulent, elliptic, blunt-acuminate, obtuse at the base, 9 cm. long, 6.5 cm. wide, 9-nerved from near the base, with cross venation; petiole 1 cm. long, ciliate, hirtellous; spikes axillary and terminal; bracts round-peltate; ovary ovoid, with apical stigma.

Loreto (?): Mainas, *Poeppig*, type.

Peperomia polycephala Trelease, sp. nov.

Herba parva glabra acaulis; folia ex apice rhizomae crassae compacte ramosae nascentia orbicularia ad centrum peltata 2–4 cm. lata in sicco tenuia, petiolo 5 cm. longo et ultra; spicae filiformes 90–100 mm. longae, pedunculo gracillimo petiolum subaequantes; bracteae rotundo-peltatae; baccae ellipsoideo-ovoideae, stylopodio gracili, stigmate apicali.

Cuzco: Gucay, Urubamba Valley, 3,000 meters, *Fortunato L. Herrera 1460*, type.

Peperomia polymorpha Trelease, sp. nov.

Herba parva rhizomatoso-erecta arboricola, caule gracili crispo-pubescente; folia alterna rotundo-obovata ad elliptica obtusa basi acuta 6–8 mm. longa 3–6 mm. lata supra primum crispo-pubescentia, obscure 3-nervia, petiolo 3 mm. longo glabro; spicae terminales 30 mm. longae, pedunculo brevissimo glabro; bracteae majusculae rotundo-peltatae.

Ayacucho: Aina, 700–1,000 meters, *Killip & Smith 22774* (type in U. S. Nat. Herb.).

Peperomia pongoana Trelease, sp. nov.

Herba modice parva erecta ramosa, petiolis et caulibus transiente puberulis exceptis glabra, caule 1–2 mm. crasso in sicco sulcato; folia ad nodum 3–4 lanceolata obtusa basi acuta 15–25 mm. longa 5–10 mm. lata 3-nervia, subtus pallida subpapillosa, petiolo 2–5 mm. longo; spicae terminales et ex axillis superioribus filiformes 60 mm. longae, pedunculo 5 mm. longo; bracteae ellipticae peltatae.

Loreto: Pongo de Manseriche, near mouth of Río Santiago, 400 meters, *Ynes Mexia 6210a* (type in herb. Univ. Calif.); also at 210 meters, *6196a*.

Peperomia pontina Trelease, sp. nov.

Herba repens intertexta epiphytica, caulibus gracilibus, caule, petiolis et nervis folii subtus plus minusve crispo-villosis; folia alterna rotundo-cordata obtuse subacuminata 10–25 mm. longa 10–25 mm. lata 7-nervia viridia et purpurascentia, petiolo 5–10 mm. longo; spicae axillares(?) 20 mm. longae 1 mm. crassae, pedunculo filiformi 10–15 mm. longo.

Junín: Near Perené Bridge, Paucartambo Valley, 700 meters, *Killip & Smith 25366* (type in U. S. Nat. Herb.; dupl. in herb. Field Mus.).

Peperomia Ppucu-ppucu Trelease, Journ. Wash. Acad. Sci. 16: 206. 1926.

A moderately small, glabrous herb, rooting from many nodes; leaves crowded, about 3 at a node, round-elliptic, rounded at both ends, often emarginulate, drying opaque and without evident nerves, 10 mm. long and wide, the petiole 2 mm. long; spikes terminal, 6 mm. long, 2 mm. thick, rather densely flowered, with anastomosing ridges, the peduncle 5 mm. long; bracts round-peltate, rather large; berries ovoid-attenuate, with pseudocupule; stigma apical.

Cuzco: Ollantaitambo, Urubamba Valley, 2,800 meters, *Herrera 802*, type, *3357*. "Ppucu-ppucu."

Peperomia praeruptorum Trelease, sp. nov.

Herba majuscula plus minusve ramosa suberecta rupicola, caule 1–3 mm. crasso sparse crispo-piloso; folia ad nodum 2–4 elliptica utrinque acuta 2–4 cm. longa 1–1.5 cm. lata 5-nervia subtus pallidiora ad nervos sublaxe pubescentia, petiolo 5–15 mm. longo crispo-pubescente; spicae terminales et axillares 80–100 mm. longae 1 mm. crassae, pseudopedicellis brevibus, pedunculo filiformi 1–2 cm. longo; bracteae rotundo-peltatae; baccae rotundato-ovoideae acutatae, stigmate apicali.

Cuzco: Río Yanamayo below Pillahuata, 2,200–2,400 meters, *F. W. Pennell 14033* (herb. Field Mus. No. 558,268, type).

Peperomia procumbens C. DC. Journ. Bot. 4: 141. 1866.

A glabrous, spreading herb; stem 3–5 cm. thick; leaves alternate, orbicular or round-ovate, very obtuse, more or less shallow-cordate, 4–7 cm. long, 4–8 cm. wide, 5-nerved, white-banded between the purple nerves; petiole 5–10 cm. long or more; spikes 1 or 2 on a slender stalk equaling the petiole, 50–70 mm. long, 4 mm. thick; peduncle 2 cm. long.

Type collected in Peru by Pavón.—Huánuco: Posuso, *Pearce 585*.—Loreto: Yurimaguas, *Spruce*, May, 1855.—San Martín: Tarapoto, *Spruce 4279, 4279a*.

Peperomia profissa Trelease, sp. nov.

Herba mediocris glabra, caule 2 mm. crasso (inferne crassiore?); folia vulgo ternata lanceolata acuminata basi subacuta 4 cm. longa 1.5 cm. lata 5-nervia, in sicco tenuia viridia, subtus pallidiora minute glanduloso-granulosa, petiolo gracili 10 mm. longo; spicae terminales 100 mm. longae 3–4 mm. crassae densiflorae, petiolo crassiusculo 15 mm. longo; bracteae rotundo-peltatae; baccae oblongo-ovoideae acutatae, pseudocupula basilari, stigmate oblique apicali.

Junín: Hacienda Chalhuapuquio, *Stevens 193* (type).

Peperomia pruinosifolia Trelease, sp. nov.

Herba parva succulentissima foliosa rupicola, caule 3–4 mm. crasso, internodiis brevibus in statu adulto plus minusve pruinosis; folia alterna sed congesta oblique ovata vel elliptica submucronata

basi acuta 8 mm. longa 5 mm. lata minute glandulosa et in statu adulto valde pruinosa, interdum plicata, opaca, nervis non manifestis, petiolo 3 mm. longo; inflorescentia non visa.

Lima: Río Blanco, 3,000–3,500 meters, *Killip & Smith 21742* (type in U. S. Nat. Herb.).

Peperomia pseudo-furcata C. DC. in DC. Prodr. 16, pt. 1: 399. 1869.

A slender-stemmed, repent, glabrous herb; leaves alternate, round-ovate, acute, slightly cordate, 3.5–4.5 cm. long, 2.5–3.5 cm. wide, 7- or obscurely 9-nerved; petiole 2–3 cm. long; spikes sympodial, 90 mm. long, 2 mm. thick; peduncle 15 mm. long; bracts round-peltate; berries globose, apiculate, deeply pitted; stigma oblique. Neg. 8334.

San Martín: Tarapoto, *Spruce 4009*, type.

Peperomia pseudo-galapagensis Trelease, sp. nov.

Herba parva ramosa, caule gracili 1–2 mm. crasso in sicco fusco anguloso superne puberulo, inferne furfuraceo-exfoliante; folia ad nodum 3–6, inferiora reflexa, breviter elliptica ad oblonga obtusa interdum emarginulata basi subacuta parva 5–7 mm. longa 2–3 mm. lata subtus granulosa obscurissime pinnatinervia, petiolo brevissimo vix 1 mm. longo; spicae terminales et ex axillis superioribus parvae 15 mm. longae 1 mm. crassae densiflorae, pedunculo vix 5 mm. longo glabro; bracteae rotundo-peltatae.

Lima: Lima, *Wilkes Expl. Exped.* (type in Gray Herb.). San Gerónimo, *5920*.

Peperomia pseudorhynchophora C. DC. in DC. Prodr. 16, pt. 1: 425. 1869.

A rather large, repent-ascending, glabrous herb; leaves alternate, ovate, somewhat acuminate, subtruncately shallow-cordate, 12–15 cm. long, 8–10 cm. wide, multiple-nerved from the lower third; petiole 8 cm. long; spikes axillary, 1 (or 2?) at the end of a short-bracted stalk, 90 mm. long, 3 mm. thick; peduncle 2 cm. long; bracts round-peltate; berries ovoid, with a short beak; stigma anterior at the base of the beak. Neg. 8529.

Huánuco: Cochero, *Poeppig* in 1830, type.

Peperomia pseudo-salicifolia Trelease, sp. nov.

Herba subparva subsimplex caespitosa erecta glabra, caule modice gracili 2–3 mm. crasso; folia alterna, inferiora caduca, oblanceolata

subacuta vel obtusa basi cuneata 4.5–6 cm. longa 1–1.2 cm. lata pinnatinervia, ramis delicatis costae circa 4×2, petiolo vix ullo, lamina ad basin decurrente, petiolo ipso lineari-decurrente; spicae circa 4 terminales et ex axillis superioribus ut videtur propter folia fulcrantia decidua false paniculatae 50–70 mm. longae 1 mm. crassae laxiflorae; bracteae rotundo-peltatae; baccae non visae.

Huánuco: Río Huallaga Canyon below Santo Domingo, 1,200 meters, *Macbride 4254* (herb. Field Mus. No. 535,334, type).

Peperomia puberulaeformis Trelease, sp. nov.

Herba mediocris glabra epiphytica arboricola, caule brevi e rhizomate crasso erecto; folia pauca elliptica obtusa ut videtur prope basin rotundata peltata 6 cm. longa 4 cm. lata in sicco viridia tenuissima translucentia circa 7-nervia, petiolo 3 cm. longo; spicae 150 mm. longae 2 mm. crassae succulentae, pedunculo 2–4 cm. longo; bracteae rotundo-peltatae; ovarium ovoideum infra stigma subcapitatum angustatum.

Ayacucho: Kimpitiriki, 400 meters, *Killip & Smith 22981* (type in U. S. Nat. Herb.).

Peperomia puberulibacca C. DC. Bot. Jahrb. 40: 260. 1908.

A moderate-sized, glabrous, somewhat branching herb; leaves alternate, subelliptic, acute at both ends, 3–5 cm. long, 1.5–2 cm. wide, 5-nerved, black-punctulate; petiole barely 10 mm. long; spikes terminal, filiform, 90 mm. long; peduncle scarcely 10 mm. long; bracts round-peltate; berries densely puberulent, globose, stipitate, mucronate; stigma subapical.

Junín: Janangu Mountains east of Huacapistana, 2,100 meters, *Weberbauer 2111*, type.

Peperomia puberulibacca var. **atricha** Trelease, var. nov.

A typo foliis subtus pilosulis non nisi foliis glabris differt; baccae non visae.

Huánuco: Muña, 2,100 meters, *Macbride 4009* (type in herb. Field Mus. No. 535,073).

Peperomia puberulipes Trelease, sp. nov.

Herba modice parva diffusa essentialiter glabra, caule subgracili 2–3 mm. crasso in sicco sulcato; folia ad nodum vulgo 3–4 rhombea obtusa basi acuta parva 2–2.5 cm. longa 1–1.5 cm. lata, in sicco plus minusve revoluta 3- vel obscure 5-nervia, petiolo brevissimo 2 mm. longo microscopice ut costa subtus puberulo; spicae terminales

100 mm. longae 2 mm. crassae densiflorae, pedunculo spicae aequicrasso 3.5 cm. longo; bracteae rotundo-peltatae; antherae oblongae 0.5 mm. longae.

Huánuco: Piedra Grande near Río Santo Domingo, 1,500 meters, *Macbride 3856* (herb. Field Mus. No. 534,919, type).

Peperomia pubescentinervis Trelease, sp. nov.

Herba majuscula sed delicata ramosa, caule 1–2 mm. superne crasso transiente sparse molliter piloso; folia vulgo ternata lanceolato-ovata acute acuminata vulgo basi acuta 4–7 cm. longa 2–3 cm. lata 5-nervia, nervis basi 5 mm. longe confluentibus, in sicco tenuia viridia lucida, supra ad nervos pubescentia, subtus pallidiora plus minusve punctata; spicae terminales et axillares filiformes 60 mm. longae sublaxiflorae, pedunculo delicatissimo 15–20 mm. longo; bracteae rotundo-peltatae.

Junín: Hacienda Chalhuapuquio, *Stevens 127* (type).

Peperomia pubinervosa Trelease, sp. nov.

Herba repens ubique velutina, caule 3 mm. crasso, internodiis breviusculis; folia orbicularia abrupte brevissime acuminata basi cordata sinu clauso 9 mm. longa 8 mm. lata palmatim 9–11-nervia, in sicco tenuia viridia, petiolo 3–12 cm. longo; inflorescentia non visa.

Junín: Near Perené Bridge, Río Paucartambo Valley, 700 meters, *Killip & Smith 25769* (type in U. S. Nat. Herb.), *25269*.

Peperomia pubiramea Trelease, sp. nov.

Herba majuscula pendula epiphytica, internodiis subgracilibus longis microscopice crispo-puberulis; folia alterna elliptica anguste acuminata basi subacuta 12–15 cm. longa 5–6 cm. lata e dimidio inferiore pinnatinervia subtus sparsissime minute pilosa, in sicco tenuia pellucida, petiolo 10–15 mm. longo; spicae geminatae ramulos anguste bibracteatos sympodiales terminantes 150 mm. longae 2–3 mm. crassae, pedunculo 15 mm. longo; bracteae rotundo-peltatae; baccae oblongae acute oblique scutulatae, stigmate in scutulo inserto.

Junín: Near Perené Bridge, Río Paucartambo Valley, 700 meters, *Killip & Smith 25360* (type in U. S. Nat. Herb.).

Peperomia pumila Opiz in Presl, Rel. Haenk. 163. *pl. 30.* 1831.

A small, erect, crisp-pubescent herb; leaves alternate, elliptic-ovate, 2–2.5 cm. long, 1.5–2 cm. wide, 3-nerved, black-punctulate; petiole 5–10 mm. long; spikes terminal and from the uppermost

axils, 40–50 mm. long, 1 mm. thick; peduncle 10–15 mm. long, rather loosely flowered; bracts round-peltate.

Huánuco: Huánuco mountains, *Haenke* in 1790, type.—"Song-air," *Lechler 2691* in part, at Kew.

Peperomia purpurea R. & P. Fl. 1: 32. *pl. 49*. 1798. *Piper purpureum* Vahl, Enum. 1: 343. 1805.

A rather large, glabrous herb; stem flexuous, 3–4 mm. thick, with short internodes, branching; leaves alternate, ovate, acuminately narrowed at both ends, 4–7 cm. long, 2–4.5 cm. wide, submultiple-nerved; petiole 1 cm. long; spikes sympodial, 100 mm. long, 2–3 mm. thick, or larger; peduncle short; bracts round-peltate.

Huánuco: Chinchao, *Ruiz & Pavón*, type.

Peperomia puteolata Trelease, sp. nov.

Herba alta glabra, caule 3 mm. crasso in sicco valde angulato; folia vulgo ternata lanceolata vel ovata acuminata basi acuta 5–6 cm. longa 2–2.5 cm. lata 5–7-nervia, nervis supra profunde impressis subtus prominentibus, in sicco dura, supra impresso-punctulata, subtus concolori-glanduloso-granulosa, petiolo vix 5 mm. longo; spicae terminales 140 mm. longae 2–3 mm. crassae densiflorae, pseudopedicellis columnaribus, pedunculo 10 mm. longo; bracteae rotundo-peltatae.

Junín: Huacapistana, *Stevens 66* (type); *Killip & Smith 24155, 24190*.

Peperomia quadratifolia Trelease, sp. nov.

Herba parva repens epiphytica ad nodos transiente plus minusve pilosa, caule filiformi radicante; folia ad nodum circa 4 rhombeo-quadrata obtuse subacuminata basi acuta, in sicco opaco-viridia 1-nervia; spicae terminales filiformes 40 mm. longae, pedunculo 20 mm. longo; bracteae rotundo-peltatae, rhachi glabra sublaxiflora; baccae ovoideae acutatae pseudocupula onustae; stigma apicale.

Junín: Schunke Hacienda, 1,400–1,700 meters, *Killip & Smith 24816* (type in U. S. Nat. Herb.).

Peperomia quadricoma Trelease, sp. nov.

Herba subparva repetite furcata glabra, caule 1–2 mm. crasso; folia ad nodum vulgo 3–4 elliptico-ovata subemarginulata basi acuta 12–15 mm. longa 7 mm. lata plus minusve 3-nervia, costa obscure ramosa, in sicco tenuia fusca opaca, petiolo vix 5 mm.

longo; spicae terminales, juveniles 15 mm. longae 1 mm. crassae, pedunculo gracili aequilongo; bracteae rotundo-peltatae.

Junín: Chanchamayo Valley, 1,800 meters, *Carlos Schunke 370* (herb. Field Mus. No. 571,424, type), *A85*.

Peperomia quaerata Trelease, sp. nov.

Herba modice parva repens vel assurgens epiphytica, caule 1–2 mm. crasso sparse pallido-villoso; folia ad nodum 3–5 rhombea obtusa vel subacuta basi cuneata 10–15 mm. longa 10 mm. lata subtus pallido-villosa, in sicco tenuia opaca, petiolo 1–2 mm. longo villoso; spicae terminales 80 mm. longae 1 mm. crassae, pedunculo 20 mm. longo; bracteae rotundo-peltatae; flores in alveola elongata insertae.

Junín: Río Pinedo, La Merced, 700–900 meters, *Killip & Smith 23653* (type in U. S. Nat. Herb.).

Peperomia quaesita Trelease, sp. nov.

Herba modice parva erecta sparse ramosa epiphytica, caule 1–2 mm. crasso plus minusve crispo-hirtello; folia ad nodum 3–6 rhombea vel inferiora deltoidea subacuta basi cuneata 10–15 mm. longa 5 mm. lata, in sicco tenuia opaca, glabra, petiolo vix 1 mm. longo glabrato; spicae terminales, juveniles 15 mm. longae 1 mm. crassae, pedunculo 2 mm. longo; bracteae rotundo-peltatae.

Junín: Puerto Bermúdez, 375 meters, *Killip & Smith 26676* (type in U. S. Nat. Herb.).

Peperomia quatrometralis Trelease, sp. nov.

Herba pendula epiphytica usque ad 4 m. longa foliis ciliatis exceptis glabra, caule gracili; folia alterna lanceolato-oblonga vel elliptica acuta basi obscure cordulata 5–7 cm. longa 2–2.5 cm. lata in sicco opaca fusca obscure pinnatinervia, rare subtus pilosa, petiolo 5 mm. longo; spicae terminales et sympodiales ramulos bibracteatos 2 cm. longos terminantes, pedunculo vix 5 mm. longo; bracteae rotundo-peltatae; baccae oblongae truncatae, scutulo lateraliter acutato, stigmate apicali.

Junín: Puerto Yessup, 400 meters, *Killip & Smith 26330* (type in U. S. Nat. Herb.).

Peperomia quimiriana Trelease, sp. nov.

Herba majuscula repenti-assurgens glabra, caule 3–5 mm. crasso; folia alterna elliptica apice abrupte acuta vel rotundata basi acuta vel in foliis infimis cuneata 10–12 cm. longa 5–7 cm. lata e 2 tertiis

inferioribus graciliter pinnatinervia, petiolo 2–6 cm. longo; spicae solitariae ramulos breves bibracteatos sympodiales terminantes 110 mm. longae 3 mm. crassae, pedunculo 2–4 cm. longo; bracteae parvae rotundo-peltatae; baccae ellipsoideae, rostro gracili, stigmate ad basin rostri inserto.

Junín: East of Quimirí Bridge, La Merced, 800–1,300 meters, *Killip & Smith 23864* (type in U. S. Nat. Herb.). La Merced, *Killip & Smith 23730*.

Peperomia quispicanchiana Trelease, sp. nov.

Herba erecta rhizomatosa plus minusve ramosa glabra in sicco pallida, caule 3 mm. crasso, internodiis inferioribus elongatis; folia ad nodum 4–6 rotundo-elliptica obtusa vel inflexo-emarginulata basi subobtusa 6–10 mm. longa 5–8 mm. lata revoluta, in sicco dura opaca nervis non manifestis, petiolo 3 mm. longo; spicae terminales 35 mm. longae 3 mm. crassae, pedunculo vix 10 mm. longo; bracteae rotundo-peltatae, rhachi pubescente, floribus in alveolis insertis.

Cuzco: Marcapata, Quispicanchi, *Weberbauer 7802* (herb. Field Mus. No. 605,156, type).

Peperomia racemifolia Trelease, sp. nov.

Herba simplex erecta glabra, caule 2–3 mm. crasso inferne 20–30 cm. longe aphyllo; folia alterna subpauca ad 2–3 cm. supremi caulis congesta oblanceolata obtuse acuminata basi cuneata 6–8 cm. longa 2 cm. lata ubique pinnatinervia, petiolo gracili 2 cm. longo; spicae terminales 100 mm. longae 1 mm. crassae, floribus subdistantibus, pedunculo filiformi 3 cm. longo; bracteae rotundo-peltatae, rhachi obscure subpuberula.

Junín: Puerto Bermúdez, 375 meters, *Killip & Smith 26657* (type in U. S. Nat. Herb.).

Peperomia rhodophylla Trelease, sp. nov.

Herba parva succulentissima petrophila opaca sed vix plus quam minutissime papillosa, caule 2–4 mm. crasso; folia ad nodum circa 4 subovato-elliptica obtusissima basi subacuta 16 mm. longa 8 mm. lata vix nervosa, petiolo 2–3 mm. longo; spicae terminales, juveniles 10 mm. longae 1 mm. crassae densiflorae, pedunculo aequilongo filiformi; bracteae rotundo-peltatae.

Cuzco: Ollantaitambo, 2,900–3,100 meters, *F. W. Pennell 13654* (herb. Field Mus. No. 558,031, type), *13661* (of very different appearance).

Peperomia rhombea R. & P. Fl. 1: 31. *pl. 46.* 1798; Dahlst. Svensk. Vet. Akad. Handl. 33, pt. 2: *pl. 3.* *Piper rhombeum* Vahl, Enum. 1: 353. 1805. *Peperomia reflexa* var. *peruviana* Miq. Syst. 174. 1843.

A cespitose, moderate-sized herb, sparsely rusty-hirsute; stem 2–3 mm. thick, somewhat branched; leaves 4 at a node, rhombic-lanceolate, gradually acuminate at both ends, 15–20 mm. long, 5–10 mm. wide, leathery, 5-nerved, drying purplish; petiole very short; spikes terminal, 20–50 mm. long, 1–2 mm. thick; peduncle 2 cm. long; bracts round-peltate; berries ovoid, pointed, with pseudo-cupule; stigma apical.

Huánuco: Pillao and Chachahuassi, *Ruiz & Pavón*, type. Yanano, 1,800 meters, on mossy tree branch, *3767.*—Junín: La Merced, 600 meters, shaded tree trunk, *5474.* Chanchamayo Valley, 1,000 meters, *Schunke A82, 445a.*—Without locality: *Haenke; Poeppig* in 1829.

Peperomia rhombeifolia Trelease, sp. nov.

Herba parva rhizomatosa caespitosa epiphytica glabra minute papillosa, caule 3 mm. crasso; folia alterna congesta rhombeo-lanceolata 2.5 cm. longa 1 cm. lata opaca obscure 5-nervia, petiolo 5 mm. longo; spicae axillares in sicco nigrescentes.

Loreto: Santa Rosa, 135 meters, *Killip & Smith 28866* (type in U. S. Nat. Herb.).

Peperomia rhombeo-elliptica Trelease, sp. nov.

Herba delicata repens essentialiter glabra arboricola pendula; folia ad nodum 2–5 elliptica vel rhombea utrinque aequaliter rotundata basi magis acuta parva 9–12 mm. longa 6 mm. lata vel infima magis rotundata et 3 mm. tantum longa tenuia obscure 3-nervia, costa superne pauciramosa, petiolo brevissimo 1 mm. longo puberulo; spicae terminales 15 mm. longae 2 mm. crassae densiflorae, pedunculo 5–10 mm. longo; bracteae rotundo-peltatae glandulosae.

Huánuco: Huacachi near Muña, 1,950 meters, *Macbride 4171* (herb. Field Mus. No. 535,246, type).—Junín: Yapas, *Killip & Smith 25510*(?).

Peperomia rhombiformis Trelease, sp. nov.

Herba modice alta silvicola ad nodos fugaciter crispo-pubescens, basibus petiolorum ciliatis; folia alterna rhombice rotundo-ovata vel obovata breviter acuminata basi cuneata 5–8 cm. longa 4–6 cm. lata

7–9-nervia, paribus 1–2 nervorum interiorum cum costa 1–2 cm. longe confluentibus, supra minute nigro-granulosa, subtus grosse granulosa, petiolo 1–2 cm. longo; inflorescentia non visa.

San Martín: San Roque, 1,350–1,500 meters, *Llewelyn Williams 6996* (herb. Field Mus. No. 629,618, type).

Peperomia rhombilimba Trelease, sp. nov.

Herba mediocris assurgens, caule 2–3 mm. crasso sparse crispo-pubescente; folia alterna rhombea vel inferiora rotundo-obovata utrinque acuta 5–6 cm. longa 3.5 cm. lata subpinnatim 7-nervia ad costam plus minusve crispo-pubescentia, petiolo gracili 5–10 mm. longo; spicae terminales filiformes fere 150 mm. longae pseudopedicellis onustis, pedunculo 15–20 mm. longo; bracteae rotundo-peltatae; baccae rotundatae mucronatae, stigmate oblique in mucrone inserto.

Ayacucho: Aina, 750–1,000 meters, *Killip & Smith 22564* (type in U. S. Nat. Herb.).

Peperomia roqueana Trelease, sp. nov.

Herba compacta parva glabra repenti-assurgens vel suberecta; folia alterna elliptico-obovata basi acuta apice truncata vel emarginulata 15–20 mm. longa 10–15 mm. lata opaca obscure pinnatinervia, petiolo 5 mm. longo; spicae terminales et axillares 15 mm. longae 2 mm. crassae, pedunculo filiformi 20–30 mm. longo; bracteae rotundo-peltatae; baccae rotundato-ovoideae oblique apicatae, stigmate obliquo.

San Martín: San Roque, 1,350–1,500 meters, *Llewelyn Williams 7635* (herb. Field Mus. No. 629,588, type), *7272*, *7382*.

Peperomia rosea Trelease, sp. nov.

Herba subparva diffusa rubro-tincta arboricola, caule subgracili 2 mm. crasso sordido-hirsuto vel crispo-piloso; folia ad nodum vulgo 3–5 rotundata vel rotundo-elliptica revoluta, subtus et supra prope basin laxe hirsuta, parva 9–10 mm. longa 5–10 mm. lata coriacea, nervis non manifestis, petiolo vix 1 mm. longo; spicae terminales et axillares 80 mm. longae 1 mm. crassae subdensiflorae, pedunculo 2 cm. longo sublaxe piloso; ovaria in rhachi immersa; baccae ovoideae acutatae pseudocupulis onustae, stigmate apicali.

Huánuco: Muña, 2,100 meters, *Macbride 3927* (herb. Field Mus. No. 534,989, type).

Peperomia rotundifolia (L.) Dahlst. Svensk. Vet. Akad. Handl. 33, pt. 2: 99. *pl. 11.* 1800; Ref. Bot. 1: *pl. 13. Piper rotundifolium* L. Sp. Pl. 30. 1753. *Piper nummularifolium* Sw. Prodr. 16. 1788. *Peperomia nummularifolia* HBK. Nov. Gen. & Sp. 1: 66. 1815. *Acrocarpidium nummularifolium* Miq. Syst. 51. 1843. *Peperomia prostrata* Hort. Williams ex Gard. Chron. 1879: 716. *f. 102;* Ill. Hort. 26: 113.

A very delicate, commonly epiphytic, repent herb; stem filiform, subcrisply pubescent; leaves alternate, orbicular or slightly obovate, scarcely 1 cm. in diameter, more or less pubescent, glandular-granular beneath; petiole 2 mm. long; spikes terminal, 15–25 mm. long, 1 mm. wide; peduncle barely 10 mm. long, bracteate at the middle; bracts of the spike round-peltate; berries round-ovoid, apiculate, granular; stigma oblique.

Ayacucho: Kimpitiriki, *Killip & Smith 22894.*—Junín: La Merced, 1,200 meters, *5625; Killip & Smith 25410, 23957, 23619, 24603, 24679, 24703; Schunke A87, 221,444.* Puerto Bermúdez to Cahuapanas, *Killip & Smith 26705.* Puerto Bermúdez, *Killip & Smith 26588.* San Nicolás, *Killip & Smith 25984.* Perené Bridge, *Killip & Smith 25248.*—Loreto: Puerto Arturo, *Williams 5137.* Mishuyacu, *Klug 1198.* Santa Rosa, *Killip & Smith 28789, 28957.* Yurimaguas, *Killip & Smith 27992, 28038, 28067, 28256.* Soledad, *Killip & Smith 29807.* Widespread, in scarcely differentiable forms, from the Antilles into South America, and northward through Central America.

Humboldt, Bonpland and Kunth seem to have tried to differentiate the obovate and orbicular-leaved forms under the specific names applied to the West Indian plant by Linnaeus in 1753 and Swartz in 1788, and report the continental plant under both names. The similar but opposite-leaved *Acrocarpidium rotundifolium* of Miquel has added to the confusion.

Peperomia rubea Trelease, sp. nov.

Herba repens glabra rubescens terrestris, ramis erectis foliosis; folia ad nodum 2–3 anguste lanceolata versus apicem anguste rotundatum sensim angustata, basi acutissima 4–5.5 cm. longa 1 cm. lata vel ultra, 3-nervia, nervis supra impressis subtus prominentibus, petiolo 5 mm. longo; inflorescentia non visa.

Loreto: Nanay to Altura, *Llewelyn Williams 837* (herb. Field Mus. No. 617,142, type). "Lancetilla del monte."

Peperomia rubens Trelease, sp. nov.

Herba majuscula subsimplex assurgens glabra, in sicco purpurascens, caule 3 mm. crasso; folia ternata lanceolato-elliptica acute acuminata basi acuta 4–5 cm. longa 1.5–2 cm. lata 3-nervia, nervis supra impressis subtus prominentibus, petiolo gracili 1 cm. longo; spicae terminales et ex axillis superioribus 100 mm. longae 2 mm. crassae et ultra, pedunculo 1 cm. longo; bracteae rotundo-peltatae.

Junín: Chanchamayo Valley, 1,200 meters, *Carlos Schunke 353* (herb. Field Mus. No. 571,407, type).

Peperomia rubescens C. DC. Bot. Jahrb. 40: 265. 1908.

A glabrous herb; stem slender; leaves 2 or 3 at a node, lanceolate, subacute at both ends, faintly nerved, barely 3 cm. long and 1.5 cm. wide; petiole very short; spikes terminal, 60 mm. long, 2 mm. thick, peduncle scarcely 5 mm. long; bracts round-peltate; berries ovoid, mucronulate, with pseudocupule; stigma apical.

Junín: La Merced, Chanchamayo Valley, 1,000 meters, *Weberbauer 1944*, type.

Peperomia rubrifolia Trelease, sp. nov.

Herba modice alta subsimplex diffusa glabra, caule 2–3 mm. crasso; folia alterna elliptica vel subovata subacuta basi rotundata vel latiora basi subcordata 7–10 cm. longa 4–8 cm. lata 9-nervia, pare intimo nervorum ad costam aliquid adnato, nervis et pagina inferiore in sicco rubris, petiolo 3–5 cm. longo; spicae sympodiales, juveniles 20 mm. longae 2 mm. crassae, pedunculo duplo breviore; bracteae rotundo-peltatae.

Junín: Schunke Hacienda, 1,400–1,700 meters, *Killip & Smith 24664* (type in U. S. Nat. Herb.). Porvenir, *Killip & Smith 25937*. Eneñas, *Killip & Smith 25770*.

Peperomia rubrispica Trelease, sp. nov.

Herba longiuscula pendula glabra arboricola, caule subgracili 2 mm. crasso, internodiis elongatis; folia alterna ovata acuta vel acute protracta, interdum basi subpeltata, majuscula 5–12 cm. longa 3–5.5 cm. lata coriacea e dimidio inferiore pinnatinervia, ramis delicatis costae circa 3×2, petiolo 6–7 cm. longo; spicae terminales solitariae vel geminatae ramulum 5–15 mm. longum terminantes rubrae elongatae 160 mm. longae 2 mm. crassae densiflorae, pedunculo 1–2 cm. longo; bracteae rotundo-peltatae magnae plus minusve imbricatae.

Huánuco: Posuso, 600 meters, *Macbride 4667* (herb. Field Mus., type).

Peperomia rufescens C. DC. in DC. Prodr. 16, pt. 1: 416. 1869.

A decumbent, glabrous herb; stem 2–3 mm. thick; leaves alternate, round-ovate or elliptic, obtuse, cordate, 4–6 cm. long, 3.5–4 cm. wide, 7-nerved; petiole 3–5 cm. long; spikes axillary, succulent and when pressed 10 mm. wide; peduncle 2 cm. long; bracts round-peltate; berries round, wrinkled; stigma apical.

Type collected in Peru, *Pavón 277*, as *P. clavata* sp. nov.—Loreto (?): Mainas, *Poeppig 2322*.

Peperomia rufescentifolia Trelease, sp. nov.

Herba gracilis plus minusve ramosa erecta glabra; folia alterna ovata subacuminata basi rotundata abrupte in petiolum angustata 3.5–5 cm. longa 2.5–4 cm. lata 5-nervia purpurascentia subtus glanduloso-granulosa, petiolo 1–2 cm. longo; spicae axillares et terminales filiformes 120 mm. longae sublaxiflorae, pedunculo 5 mm. longo; bracteae rotundo-peltatae; baccae rotundato-ovoideae mucronatae, stigmate obliquo.

San Martín: Lamas near Tarapoto, 840 meters, *Llewelyn Williams 6487* (herb. Field Mus. No. 622,968, type).

Peperomia rugata Trelease, sp. nov.

Herba glabra repens majuscula, caule 3–4 mm. crasso; folia alterna ovata vel subdeltoideo-ovata acuminata basi obtusa vel subcordulata, prope basin peltata, 5–9 cm. longa 3–7 cm. lata obscure submultiplinervia in sicco coriacea flavescentia, supra minute albido-pustulata, subtus rugulosa, petiolo 1.5–4 cm. longo; spicae 120 mm. longae 2 mm. crassae, pedunculo 2–3 cm. longo ramulum brevem 1-bracteatum terminante; bracteae rotundo-peltatae.

Junín: East of Quimirí Bridge, near La Merced, 800–1,300 meters, *Killip & Smith 23823* (type in U. S. Nat. Herb.).

Peperomia rugatifolia Trelease, sp. nov.

Herba parva repens glabra epiphytica, caule 1–2 mm. crasso; folia ad nodum 3–5 subrhombeo-obovata obtusa basi acuta 10–15 mm. longa 8 mm. lata, in sicco firma lucida supra rugosa, obscure 3-nervia, petiolo vix ullo; spicae terminales(?) filiformes 30 mm.

longae laxiflorae, pedunculo 5–10 mm. longo; bracteae rotundo-peltatae.

Junín: Santa Rosa, Pichis Trail, 625–900 meters, *Killip & Smith 26183* (type in U. S. Nat. Herb.).

Peperomia rugatifolia var. **exilispica** Trelease, var. nov.

Herba repens epiphytica, caule gracili crispo-pubescente; folia ad nodum vulgo 4 rugosa; spicae 40–70 mm. longae vix 0.5 mm. crassae.

Junín: Chanchamayo Valley, 1,500 meters, *Carlos Schunke 1561* (herb. Field Mus. No. 627,239, type), *177*.

Peperomia rupiseda C. DC. ex Hill, Ann. Bot. 21: 148, 157, *pl. 5*. 1907; Bot. Jahrb. 40: 256. 1908.

A small, "rhizomatous," acaulescent, glabrous herb; leaves orbicular, peltate in the middle, about 25 mm. in diameter; petiole and peduncle elongate; spikes 60 mm. long; bracts obovate-peltate; berries subglobose, rugulose; stylopodium short; stigma apical.

Lima: Between Matucana and Tambo de Viso, 2,370–2,650 meters, *Weberbauer 145*, type.

Peperomia salicifolia C. DC. Ann. Cons. Jard. Genève 2: 281. 1898.

A glabrous herb; stem slender; leaves alternate, linear-lanceolate, long-attenuate rather than acuminate, more abruptly acute at the base, 5–6 cm. long, 1–1.5 cm. wide, 5-nerved; petiole 5 mm. long; spikes about 4, subumbellately clustered close to the uppermost leaves, 40–50 mm. long, 1 mm. thick; peduncle barely 5 mm. long; berries subovoid with oblique stigma.

Type collected in Peru, *Gay 847*.

Peperomia salmonicolor Trelease, sp. nov.

Herba delicata repens epiphytica, saltem ramis obscurissime pilosulis; folia vulgo ternata suborbicularia apice rotundata basi subacuta 4–6 mm. lata in sicco subrosea opaca, nervis non manifestis, petiolo 1–2 mm. longo; spicae terminales 10 mm. longae 2 mm. crassae rubescentes densiflorae, pedunculo filiformi 15 mm. longo; bracteae rotundo-peltatae.

San Martín: San Roque, 1,350–1,500 meters, *Llewelyn Williams 7329* (herb. Field Mus. No. 624,523, type).

Peperomia salmonicolor var. **viridis** Trelease, var. nov.

Folia minus rubescentia usque ad 10 mm. longa et 6 mm. lata; spicae ad 15 mm. longae, pedunculo ad 20 mm.; baccae rotundato-ovoideae acutatae pseudocupula onustae, stigmate apicali.

San Martín: San Roque, 1,350–1,500 meters, *Llewelyn Williams 7258* (herb. Field Mus. No. 629,593, type).

Peperomia san-buenaventurana Trelease, sp. nov.

Herba modice alta assurgens glabra, caule 2–5 mm. crasso ad nodos plus minusve incrassato; folia ad nodum 3–6 elliptica vel subobovata apice rotundata basi acuta 10–15 mm. longa 5–8 mm. lata subpinnatinervia, petiolo 1–2 mm. longo; spicae ramulos graciles paucifolios terminantes 50 mm. longae 1 mm. crassae laxiflorae, pedunculo 10 mm. longo; bracteae rotundo-peltatae; ovarium rotundato-ovoideum apiculatum, stigmate apicali.

Lima: San Buenaventura, 2,700 meters, *F. W. Pennell 14566* (type in herb. Acad. Nat. Sci. Phila.).

Peperomia sangabanensis Trelease, sp. nov.

Herba delicata diffusa, caule filiformi puberulo; folia ad nodum 2–6 lanceolata utrinque acuta vel obovata et apice rotundata 7–8 mm. longa 3–4 mm. lata 3-nervia; inflorescentia non visa.

Puno: Sangabán, *Lechler 2378* (type in herb. Kew.).

Peperomia san-roqueana Trelease, sp. nov.

Herba repens glabra arboricola, caule elongato 2–3 mm. crasso; folia opposita elliptica vel lanceolato-elliptica obtusa basi acuta 4.5–5.5 cm. longa 2–2.5 cm. lata circa 7-nervia subtus minute granulosa in sicco opaca, petiolo 5–10 mm. longo; inflorescentia non visa.

San Martín: San Roque, 1,350–1,500 meters, *Llewelyn Williams 7260* (herb. Field Mus. No. 629,783, type).

Peperomia santa-cruzana Trelease, sp. nov.

Herba suberecta statu juvenili papillosa, caule 2 mm. crasso, internodiis modice brevibus; folia ad nodum 3–4 rhombeo-obovata subacuta basi cuneata 12 mm. longa 8 mm. lata 3-nervia in sicco subtenuia viridia, petiolo brevissimo; spicae terminales et ex axillis superioribus 40–100 mm. longae 2 mm. crassae, pseudopedicellis longis filiformibus, pedunculo 15–20 mm. longo; bracteae rotundo-peltatae.

Peru(?): Santa Cruz, 1,800–2,100 meters, *Pearce*, December, 1864 (type in herb. Kew.).

Peperomia santiagoana Trelease, sp. nov.

Herba majuscula repenti-pendula glabra, caule 2–3 mm. crasso; folia alterna lanceolato-ovata sensim subacuta basi rotundato-acuta 6–8.5 cm. longa 2.5–3.5 cm. lata multiplinervia, costa ramis 2 fere basilaribus et uno medio utroque latere onusta, in sicco opaca olivacea, petiolo 1–2 cm. longo; spicae geminatae ramulum 1-bracteatum terminale vix 2 cm. longum terminantes 80 mm. longae (et ultra?) 2 mm. crassae; bracteae rotundo-peltatae; ovarium oblique scutulatum.

Loreto: Río Santiago, 200 meters, *Ynes Mexia 6146* (type in herb. Univ. Calif.).

Peperomia sarcostachya Trelease, sp. nov.

Herba brevicaulis comparate magna glabra, caule 3 mm. crasso; folia pauca alterna rotundo-ovata obtusissima basi cordata 9–10 cm. longa 6.5–8 cm. lata 5- vel obscure 7-nervia, in sicco tenuia, supra fusca inter nervos majores pallido-vittata, petiolo 2–7 cm. longo; spicae solitariae laterales carnosae obtusae in sicco 35 mm. longae 7 mm. crassae, pedunculo erecto gracili 2 cm. longo; bracteae rotundo-peltatae; ovarium immersum subglobosum, stigmate fere apicali.

Loreto: Santa Rosa, 135 meters, *Killip & Smith 28889* (type in U. S. Nat. Herb.).

Peperomia sarcostachya var. **repens** Trelease, sp. nov.

Herba late repens plus minusve radicans, internodiis ut petiolis magis elongatis; folia 4.5–10 cm. longa 3–6.5 cm. lata pallido-zonata et in statu juvenili albo-venulosa; spicae clavatae carnosae in sicco 10 mm. latae, pedunculo 3.5 cm. longo.

Junín: Perené Bridge, Paucartambo Valley, 700 meters, *Killip & Smith 25307* (type in U. S. Nat. Herb.).

Peperomia scabiosa Trelease, sp. nov.

Herba subparva repens furcata epiphytica, caule gracili 1 mm. crasso glabro inferne ad 3 mm. crasso epidermide exfoliante argenteo-furfuraceo; folia ad nodum vulgo 3–4 orbicularia vel rotundo-elliptica vel obovata vulgo emarginulata basi subacuta parva 7–10 mm. longa 6–9 mm. lata subtus brunneo-granulosa et evanescente plus minusve pubescentia, 3-nervia costa prope medium ramosa,

petiolo 1 mm. longo transiente pubescente; spicae terminales 70 mm. longae 1 mm. crassae laxiflorae, pedunculo vix 1 cm. longo glabro; bracteae rotundo-peltatae; baccae oblongo-ovoideae pseudocupula onustae oblique acutatae, stigmate apicali.

Huánuco: Piedra Grande near Río Santo Domingo, 1,500 meters, *Macbride 3857* (herb. Field Mus. No. 534,920, type).

Peperomia scandens R. & P. Fl. 1: 32. *pl. 51*. 1798. *Piper scandens* Vahl, Enum. 1: 346. 1805. *Acrocarpidium scandens* Miq. Syst. 59. 1843.

A delicate, repent, crisp-pubescent herb, commonly arboricolous; stem filiform; leaves alternate, round-ovate, subacute, rounded or truncate at the base or subcordate, 1–2 cm. long and wide, 3–5-nerved; petiole 5–15 mm. long; spikes terminal on a 1-bracted filiform stalk 1 cm. long, 10 mm. long, 1 mm. thick, the peduncle of equal length; bracts round-peltate; berries oblong, slender-bracted; stigma anterior at the base of the beak.

Huánuco: Chinchao, Cochero, Posuso, and Mocora, *Ruiz & Pavón*, type. Posuso, *Ruiz;* common on tree trunks, logs, and rocks, 600 meters, *4715*.—Ayacucho: Near Kimpitiriki, *Killip & Smith 22866, 22895*.—Junín: Above San Ramón, 1,300–1,700 meters, *Schunke A83, 367*. Río Pinedo, 700–900 meters, *Killip & Smith 23616*. Puerto Bermúdez, *Killip & Smith 16445*. Puerto Yessup, *Killip & Smith 26253, 23613*. La Merced, *Killip & Smith 23724, 23939*. Perené Bridge, *Killip & Smith 24963, 25282*.—Loreto: Soledad, *Killip & Smith 29592, 29725*. Puerto Arturo, *Killip & Smith 27772*. Balsapuerto, *Killip & Smith 28670, 28674*. Santa Rosa, *Killip & Smith 28836*.—San Martín: Tarapoto, *Spruce 3952*, the type of var. *fertilior* C. DC. in DC. Prodr. 16, pt. 1: 434. 1869. Like *P. rotundifolia*, a widespread aggregate of interblending forms, reaching from the Antilles into South and Central America.

Peperomia scandens var. **longispica** Trelease, var. nov.

Folia longiora, 10–20 mm. longa 12–25 mm. lata; spicae 15–30 mm. longae.

Loreto: Balsapuerto, 150–350 meters, *Killip & Smith 28382* (type in U. S. Nat. Herb.).

The leaves are more like the large ones figured by Ruiz and Pavón, which are as much as 30 mm. long and 35 mm. wide, but their specimens are actually small-leaved.

Peperomia Schunkeana Trelease, sp. nov.

"Frutex," ramis 5 mm. crassis dense fulvo-villosis, pilis gracilibus; folia alterna ovata obscure breviter acuminata basi concave truncata 14–15 cm. longa 11–12 cm. lata fere 2 cm. supra basin peltata e dimidio inferiore multiplinervia, nervis circa 11, utrinque intertexto-sericea, petiolo circa 7 cm. longo sericeo-villoso; spicae (terminales?) 23 mm. longae 4 mm. crassae fulvo-pilosae densiflorae, pedunculo 2 cm. longo fulvo-villoso; bracteae rotundo-peltatae; baccae ellipsoideae rostratae; stigma ad basin rostri insertum.

Junín: Chanchamayo Valley, 1,200 meters, *Carlos Schunke 342* (herb. Field Mus. No. 571,398, type), *56; Killip & Smith 24526.*

Peperomia sclerophylla Trelease, sp. nov.

Herba stolonifera assurgens succulenta glabra, caule 2–4 mm. crasso in sicco sulcato; folia opposita vel ternata lanceolato-ovata vel elliptico-ovata obtuse acuminata basi acuta 2–3 cm. longa 1–1.5 cm. lata 3-nervia in sicco dura revoluta impresso-punctulata, petiolo 2–3 mm. longo; spicae terminales 80 mm. longae 2 mm. crassae, pedunculo gracili 20 mm. longo; bracteae rotundo-peltatae; baccae ovoideae acutatae pseudocupula onustae, stigmate apicali.

San Martín: Near Tarapoto, 360–900 meters, *Llewelyn Williams 6879* (herb. Field Mus. No. 624,519, type).

Peperomia scutaleifolia Trelease, sp. nov.

Herba majuscula arboricola repens, ramis foliatis divergentibus, foliis et petiolis obscure ciliatis exceptis glabra; folia alterna elliptica vel lanceolata 4–7 cm. longa 2–5 cm. lata acuminata basi acuta obscure pinnatinervia in sicco brunnea coriacea opaca, petiolo 5–10 mm. longo; spicae sympodiales elongatae; baccae oblongae oblique acute scutulatae, stigmate centrali.

Junín: Yapas, Pichis Trail, 1,350–1,600 meters, *Killip & Smith 25557* (type in U. S. Nat. Herb.).

Peperomia scutellaefolia R. & P. Fl. 29. *pl. 44.* 1798. *Piper scutellaefolium* Vahl, Enum. 1: 356. 1805. *Piper scutellatum* Pers. Syn. 1: 34. 1805.

A small, glabrous, acaulescent herb; leaves from a rather large corm rooting from the sides and bottom, the blades round-ovate, peltate toward the base, 30 mm. long, 20 mm. wide; petiole 3–7 cm. long; spikes rather thick, 50–60 mm. long; bracts round-ovate; peduncle scarcely equaling the petiole.

Arequipa: *Ruiz & Pavón*, type.

Peperomia secunda R. & P. Fl. 1: 30. *pl. 45.* 1798; Miq. Ill. Piper. *pl. 22. Piper racemosum* Vahl, Enum. 1: 337. 1805.

A short and thick-stemmed, simple herb, appressed-villous throughout; leaves congested, alternate, round-ovate, subacuminate, very shallowly cordate, 4–6 cm. in diameter, submultiple-nerved with about 6 basal nerves, the costa as well as the longer laterals again branched; petiole 3–9 cm. long; spikes many, secund on the branches of an ample, stout-stemmed, terminal panicle, scarcely 10 mm. long and short-peduncled; bracts round-peltate; berries ovoid, pointed; stigma apical. Neg. 8389.

Huánuco: Pillao and Chachahuassi, *Ruiz & Pavón*, type.

Peperomia Seleri C. DC. Ann. Cons. Jard. Genève 21: 247. 1920.

A small, glabrous, acaulescent herb; leaves apparently from a corm, ovate, peltate below the middle, about 5 mm. in diameter; petiole 3 cm. long; spikes 20 mm. long; peduncle equaling the petiole; bracts ovate; ovary suboblong, with a short cylindric stylopodium; stigma apical.

Lima: Cerro de Amazonas near Lima, on stones, *Seler 262*, type. Cerro de San Cristóbal, on rocks, *Seler 250.*

Peperomia semielongata Trelease, sp. nov.

Herba mediocris repens glabra, caule subgracili 2 mm. crasso in sicco plus minusve quadrangulato; folia alterna ovata obtuse subacuminata basi truncata vel breviter cordata 4.5–6 cm. longa 3–3.5 cm. lata in sicco viridia multiplinervia, nervis basilaribus 2 paribus, pare altero ramorum e tertio inferiore costae nascente, petiolo gracili 2.5–3 vel ad 10 cm. longo; spicae terminales 50 mm. longae 2 mm. crassae dense subverticillatim densiflorae, pedunculo 3 cm. longo medio bracteato; bracteae rotundo-peltatae parvae fuscae.

Junín: Hacienda Schunke, La Merced, *Macbride 5644* (herb. Field Mus., type); *Killip & Smith 24683.*

Peperomia semisupina Trelease, sp. nov.

Herba majuscula semidecumbens essentialiter glabra in sicco fusca, caule 4 mm. crasso, internodiis elongatis; folia alterna late lanceolata anguste longiacuminata basi rotundata ad acuta majuscula 9–10 mm. longa 3–4 mm. lata e dimidio inferiore subpinnatinervia, ramis delicatis costae circa 4×2, subtus pallidiora pallido-granulosa, ciliata, petiolo 10–15 mm. longo ciliato; spicae

oppositifoliae caulem caduci-bracteatum vix 15 mm. longum terminantes 50 mm. longae baccis inclusis 5 mm. crassae densiflorae, pedunculo filiformi 2 cm. longo; bracteae rotundo-peltatae magnae; baccae rubrae oblongae oblique acuminato-truncatae, stigmate subapicali.

Junín: Hacienda Schunke, La Merced, 1,200 meters, *Macbride 5765* (herb. Field Mus. No. 536,795, type); *Killip & Smith 24575; Schunke 185, 638.*

Peperomia seposita Trelease, sp. nov.

Herba majuscula adscendenti-ramosa foliosa, caule 3 mm. crasso et ultra subquadrangulari puberulo; folia ad nodum circa 6 oblonga obtusa basi sensim acuta 12–25 mm. longa 2–5 mm. lata obscure pinnatinervia, supra fusca costa puberula, subtus flavescentia glabra minute granulosa, petiolo 1 mm. longo plus minusve puberulo; spicae terminales et ex axillis superioribius, juvenes 15–20 mm. longae 1 mm. crassae, pedunculo 1–2 mm. longo subpuberulo; bracteae rotundo-peltatae rubro-brunneae.

Junín: Hacienda Chalhuapuquio, *Stevens 213* (type).

Peperomia septemnervis R & P. Fl. 1: 31. *pl. 47.* 1798. *Piper septemnerve* Vahl, Enum. 1: 349. 1805.

A glabrous, suberect herb, the nodes purplish; leaves 2 or 3 at a node, lance-elliptic, acuminate, acute-based, 5–8 cm. long, 2–3 cm. wide, 7-nerved; petiole 5 mm. long; spikes curved, 80–100 mm. long, 4 mm. thick; peduncle 10 mm. long; bracts round-peltate; ovary ovoid (with pseudocupule?); stigma apical.

Huánuco: Posuso, *Ruiz & Pavón*, type. Piedra Grande, 1,500 meters, *3860.*—Junín: Yapas, 1,350–1,600 meters, *Killip & Smith 3860.*

Peperomia Smithii Trelease, sp. nov.

Herba glabra repenti-assurgens epiphytica, caule 2 mm. crasso, internodiis longiusculis; folia ad nodum 2–4 late rhombeo-ovata obtusa vel obtuse acuminata basi subacuta 1.5–2 cm. longa 1–1.5 cm. lata in sicco subtenuia opaca, obscure 3–5-nervia, petiolo 3 mm. longo; spicae terminales filiformes 70 mm. longae, pedunculo 15 mm. longo; bracteae rotundo-peltatae.

Loreto: Yurimaguas to Balsapuerto, 135–150 meters, *Killip & Smith 28115* (type in U. S. Nat. Herb.).

Peperomia spectabilis Miq. Lond. Journ. Bot. 4: 417. 1845.

A rather large, hard-stemmed herb, finely crisp- or appressed-pubescent throughout; leaves alternate or suboppositely congested, ovate, subacuminate, rounded at the base, 10–13 cm. long, 7–8 cm. wide, pinnately nerved; petiole 3 cm. long; spikes clustered in the upper axils and paniculately whorled upward, filiform, 100 mm. long; peduncle 10 mm. long; bracts round-peltate; ovary suboblong, acutely scutulate; stigma subcentral.

Type collected in Peru, *Mathews 1635*.

Peperomia spiculata Trelease, sp. nov.

Herba majuscula gracilis glabra nigrescens, caule 1–2 vel inferne 4 mm. crasso alato; folia alterna lanceolata anguste acuminata basi acuta 5–5.5 cm. longa 1.5–2 cm. lata 5-nervia, in sicco fusca opaca, petiolo 5 mm. longo amplexicauli-decurrente; spicae terminales et axillares filiformes 100–150 mm. longae subdensiflorae, pedunculo gracili 10 mm. longo; bracteae rotundo-peltatae; baccae rotundato-ovoideae mucronatae, stigmate obliquo in mucrone inserto.

Junín: Chanchamayo Valley, *Carlos Schunke 352* (herb. Field Mus. No. 571,406, type), *A88*.

Peperomia spiculata var. **elliptica** Trelease, var. nov.

Folia elliptica 6–6.5 cm. longa 3 cm. lata 7-nervia.

Junín: Chanchamayo Valley, *Carlos Schunke 388* (herb. Field Mus. No. 571,442, type).

Peperomia Sprucei C. DC. Journ. Bot. 4: 133. 1866.

A small, glabrous, acaulescent herb; leaves few, from a corm (?), elliptic or rounded, obtuse at both ends, 3.5 cm. long, 2.5 cm. wide, 5-nerved, coriaceous, paler beneath; petiole 2–10 cm. long; spikes filiform, 40–60 mm. long; peduncle 3 cm. long or more; bracts round-peltate; berries ovoid, with a short style; stigma apical. Neg. 8391.

San Martín: Tarapoto, *Spruce 4931*, type.

Peperomia striata R. & P. Fl. 1: 32. *pl. 52*. 1798. *Piper striatum* Vahl, Enum. 1: 343. 1805.

A rather large, simple, erect herb, soft-hairy throughout, the stem striate; leaves elliptic, acute at both ends or short-acuminate, 6–8 cm. wide, 12–16 cm. long, pinnately nerved; petiole 2–5 cm.

long; spikes several in a terminal panicle, 70 mm. long, 2–3 mm. thick; peduncle 10 mm. long; bracts round-peltate; ovary ovoid, mucronulate, with an anterior stigma.

Huánuco: Cochero and Chinchao, *Ruiz & Pavón*, type. Cochero, *Dombey; Poeppig.*

Peperomia subandina Trelease, sp. nov.

Herba parva repens foliosa glabra, caule 1 mm. crasso; folia quaternata obovata subtruncata basi cuneata 5 mm. longa 6 mm. lata in sicco pallida opaca, petiolo 1 mm. longo; spicae terminales 20 mm. longae 1 mm. crassae, pedunculo filiformi 10 mm. longo; bracteae rotundo-peltatae crenulatae, rhachi hirtella.

Junín: Pichis Trail, 400 meters, *Killip & Smith 26218* (type in U. S. Nat. Herb.).

Peperomia subcalvescens Trelease, sp. nov.

Herba majuscula delicata plus minusve ramosa, caule 1–2 mm. crasso, internodiis elongatis glabris; folia ad nodum 4–6 elliptico-subobovata acuta vel anguste acuminata basi acuta 3-nervia in sicco tenuia viridia, supra ad nervos paullo pubescentia, subtus pallidiora glabra, petiolo gracili 4–5 mm. longo; spicae subnumerosae terminales et ex axillis superioribus filiformes 40 mm. longae sublaxiflorae, pedunculo 5–10 mm. longo; bracteae rotundo-peltatae.

Junín: Huacapistana, *Stevens 84* (type); *Killip & Smith 24321, 24248.*

Peperomia subdichotoma Trelease, sp. nov.

Herba mediocris stolonifera erecta pseudo-furcata glabra epiphytica, caule 2–3 mm. crasso; folia ad nodum vulgo 3–4 obovata emarginata basi acuta vel in foliis longioribus cuneata 17–18 mm. longa 6–10 mm. lata obscure 3-nervia, costa indistincte ramosa, petiolo vix 2 mm. longo; spicae terminales vix 40 mm. longae et 2 mm. crassae densiflorae, pedunculo circa 1 cm. longo; bracteae rotundo-peltatae primo superficiales, serius cum ovariis profunde in fissuris longitudinalibus rhachis immersae.

Huánuco: Muña, 2,100 meters, *Macbride 4008* (herb. Field Mus. No. 535,072, type).

Peperomia subsericata Trelease, sp. nov.

Herba parva stolonifero-caespitosa epiphytica, caule filiformi laxe evanescente minute piloso; folia alterna lanceolata utrinque acuta vel inferiora obtusa et elliptica, 10 mm. longa 4 mm. lata

glabra opaca obscurissime 3-nervia, petiolo gracillimo 2 mm. longo; spicae terminales filiformes 30 mm. longae densiflorae, pedunculo gracillimo 5 mm. longo; bracteae rotundo-peltatae.

Junín: Chanchamayo Valley, 1,500–1,800 meters, *Carlos Schunke* (herb. Field Mus. No. 571,537, type), *A81, 366, 369, 380, 545a, 549; Killip & Smith 24815.* Yapas, *Killip & Smith 25547, 25513.*

Peperomia subvillicaulis Trelease, sp. nov.

Herba mediocris repenti-assurgens rupicola, caule 2 mm. crasso laxe subvilloso; folia opposita vel ternata obovata et obtusa, vel in ramis sterilibus typice subobovato-elliptica et utrinque obtusa, 1.5–3.5 cm. longa 1–2 cm. lata, 3- vel obscure 5-nervia, prope basin plus minusve molliter pilosa vel glabrescentia, petiolo 5–10 mm. longo molliter piloso; spicae terminales et axillares 30–40 mm. longae 1 mm. crassae pseudopedicellis brevibus onustae, pedunculo filiformi 5–15 mm. longo glabrato; bracteae rotundo-peltatae; baccae ovoideae acutatae, stigmate apicali.

Cuzco: Pillahuata, 2,200–2,400 meters, *F. W. Pennell 13990* (herb. Field Mus. No. 558,232, type).

Peperomia sylvatica C. DC. in DC. Prodr. 16, pt. 1: 435. 1869.

A suberect herb, the stem 3 mm. thick, loosely subvillous; leaves alternate, subrhombic-ovate or elliptic, acute at both ends, submultiple-nerved from the lower half, black-punctulate; petiole 15 mm. long; spikes terminal and axillary, 110 mm. long, 2 mm. thick; peduncle 15–20 mm. long; bracts round-peltate; ovary ovoid, submucronate; stigma apical.

Huánuco: Near Cochero, *Poeppig* in 1839, type.

Peperomia tarapotana C. DC. Journ. Bot. 4: 137. 1866.

A glabrous, stoloniferous herb; leaves alternate, ovate, subacuminate, peltate above the slightly retuse or deeply cordate base, 12–15 cm. long, 11 cm. wide, about 10-nerved; petiole as long as the blade; spikes panicled, 3–5 at the end of an axillary 4-winged stalk as long as the petiole, 20–30 mm. long; peduncle short; bracts round-peltate; berries ovoid, pointed; stigma apical. Neg. 8343.

San Martín: Tarapoto, *Spruce 4570*, type.

Peperomia tenuiramea C. DC. Bot. Jahrb. 40: 263. 1908.

A glabrous, rather large epiphyte, the stem 3 mm. thick; leaves alternate, lance-elliptic, acute at both ends, 15–20 cm. long, 5.5–7.5 cm. wide, pinnately nerved; petiole 1 cm. long; spikes few on a short,

bracted, sympodial or terminal stalk, 150 mm. long, 2 mm. thick; peduncle 1 cm. long; bracts round-peltate; berries glandular, ellipsoid, beaked; stigma anterior.

Huánuco: Between Monzón and Río Huallaga, 600–700 meters, *Weberbauer 3656*, type.

Peperomia teresitensis Trelease, sp. nov.

Herba compacta mediocris foliosa, caule ad 5 mm. crasso griseotomentoso; folia alterna elliptico-obovata vulgo obtusa basi acuta 3.5–6.5 cm. longa 2–3.5 cm. lata, subtus 5-nervia, costa superne pauciramosa, papyracea, supra obscure viridia glabrata, subtus pallidiora albida ad nervos subvillosa, petiolo ad 2 cm. longo subtomentoso; spicae apicales et comparate numerosae ex axillis superioribus 40 mm. longae 1 mm. crassae subdensiflorae, pedunculo vix ullo; bracteae rotundo-peltatae concavae.

Junín: Teresita, *Stevens 88* (type).

Peperomia tetragona R. & P. Fl. 1: 31. *pl. 47.* 1798. *Piper tetragonum* Vahl, Enum. 1: 349. 1805.

A rather coarse, succulent, repent, glabrous herb, the stem striatulate; leaves 2 or 3 at a node, elliptic, acute or acuminate, acute-based, 6–10 cm. long, 2.5–4.5 cm. wide, 5-nerved; petiole 5 mm. long; spikes 2 at the end of a reduced-leaved stalk 2 cm. long, curved, 70–100 mm. long, 4 mm, thick; peduncle 2 cm. long; bracts round-peltate; berries ovoid, with pseudocupule (?); stigma apical.

Huánuco: Chinchao, *Ruiz & Pavón*, type.—San Martín: San Roque, epiphytic, 1,400 meters, *Williams 7198, 7710.*

Peperomia tetrica Trelease, sp. nov.

Herba modice parva late repens, ramis paucis adscendentibus, nodis et petiolis puberulis exceptis glabra, caule 2 mm. crasso; folia opposita vel ternata lanceolata obtuse acuminata 4 cm. longa 1 cm. lata 3-nervia in sicco opaca, subtus minute punctulata, petiolo circa 3 mm. longo; inflorescentia non visa.

Loreto: Balsapuerto, 350–550 meters, *Killip & Smith 28525* (type in U. S. Nat. Herb.).

Peperomia timbuchiana Trelease, sp. nov.

Herba gracilis diffusa majuscula paullo ramosa, caule minute evanescente puberulo; folia alterna elliptica vel sublanceolata acute acuminata basi acuta vel rotundato-acuta, in sicco coriacea, subtus brunnea, obscure pinnatinervia; spicae 1–2 ramulum brevem termin-

alem 2-bracteatum terminantes 100 mm. longae, pedunculo filiformi 10 mm. longo; baccae oblongae scutulatae oblique apicatae, stigmate apicali.

Loreto: Timbuchi, Río Nanay, *Llewelyn Williams 1163* (herb. Field Mus. No. 608,106, type).

Peperomia trichopus Trelease, sp. nov.

Herba delicatissima epiphytica repens, caule filiformi glabro; folia ad nodum vulgo 5 obovato-cuneata apice rotundata parva vix 5 mm. longa et 4 mm. lata 3-nervia, supra sparse adpresso-pubescentia, petiolis filiformibus in verticillo interdum inaequalibus 2–5 mm. longis; spicae terminales 30 mm. longae 1 mm. crassae laxiflorae, pedunculo filiformi 3–4 cm. longo; bracteae rotundo-peltatae; baccae rubro-brunneae oblongae curvae stipite brevi sed distincto onustae subconice apiculatae, stigmate terminali.

Huánuco: Piedra Grande near Río Santo Domingo, 1,500 meters, *Macbride 3855* (herb. Field Mus. No. 534,918, type).

Peperomia tricolor Trelease, sp. nov.

Herba majuscula repenti-assurgens epiphytica, caule 3 mm. crasso laxe pallido-villoso; folia alterna subrhombeo-ovata obtuse acutata basi acuta 4–5 cm. longa 2.5–3 cm. lata 5-nervia, supra viridia nervis albis, subtus rubra nigro-granulosa glabra, petiolo 1 cm. longo crispo-pubescente; spicae terminales 100 mm. longae 2 mm. crassae, pedunculo 10 mm. longo crispo-pubescente; bracteae rotundo-peltatae.

Junín: San Nicolás, Pichis Trail, 1,100 meters, *Killip & Smith 25973* (type in U. S. Nat. Herb.). San Nicolás to Azupizú, *Killip & Smith 26110*.

Peperomia trinervis R. & P. Fl. 1: 32. *pl. 50*. 1798; Miq. Ill. Piper. *pl. 8*. *Piper trinerve* Vahl, Enum. 1: 342. 1805.

A more or less persistently crisp-pubescent, black-punctulate herb; leaves alternate, ovate, acuminate, acute-based, 3–4 cm. long, 1.5–2 cm. wide, 3-nerved; petiole 5 mm. or in the lower leaves 15 mm. long; spikes terminal and from the upper axils, 100 mm. long, 2 mm. thick; peduncle 10 mm. long; bracts round-peltate; berries subglobose, mucronate; stigma oblique. Neg. 8393.

Huánuco: Chinchao, *Ruiz & Pavón*, type.—Loreto: Without locality, *Weberbauer 4504*. Puerto Arturo, *Killip & Smith 2789*. Santa Rosa, *Killip & Smith 28873*. Yurimaguas, *Killip & Smith 27690*.—San Martín: Tarapoto, *Spruce 4310*.

Peperomia trullaefolia Trelease, sp. nov.

Herba majuscula laxe sparse ramosa, caule crassiusculo versus basin 5 mm. crasso et ultra puberulo; folia ad nodum vulgo circa 6 oblonga profunde concava vel conduplicata parva 10 mm. longa 3 mm. lata lutescentia granulosa carnosa obtusa, nervis obscuris, glabrata, petiolo brevi 1 mm. longo velutino; spicae terminales ad apices ramulorum brevium axillarium deciduo-foliatorum, 50 mm. longae 1 mm. crassae lutescentes laxiflorae, pedunculo vix 1 cm. longo glabrato; bracteae rotundo-peltatae; baccae ovoideae mucronatae, stigmate obliquo.

Cuzco: Ollantaitambo, 3,000 meters, *Cook & Gilbert 401* (type in U. S. Nat. Herb.).

Peperomia umbelliformis C. DC. Bot. Jahrb. 40: 257. 1908.

A rather small, umbellately branched, glabrous herb, the stem slender; leaves alternate (?), lanceolate, acute at both ends (?), 14 mm. long, 6 mm. wide, 3-nerved; petiole suppressed; spike solitary at the base of a leaf terminating each scaly floriferous branch, very short and subsessile; bracts round-peltate; ovary oblong-ellipsoid, with a style; stigma apical.

Lima: Monte Amancaes near Lima, on cliffs, 200–800 meters, *Weberbauer 1631*, type; *1684*.

Peperomia umbilicata R. & P. Fl. 1: 30. *pl. 45*. 1798; Hill, Ann. Bot. 21: 150. 1907. *Piper umbilicatum* Vahl, Enum. 1: 356. 1805. *Tildenia peruviana* Miq. Nov. Act. Nat. Cur. 19: Suppl. 1: 483. 1843.

A small, glabrous, acaulescent herb; leaves from a corm rooting from the sides as well as the bottom, round, sometimes subacute, peltate, 10–20 mm. in diameter; petiole 4–6 cm. long; spikes 6–9 mm. long; peduncle elongate; bracts round-ovate; berries with small stylopodium; stigma apical. Neg. 8395.

Type material from Lima, Chancai, and Huánuco, growing on rocks, *Ruiz & Pavón*.—Without locality, *Haenke*.

Peperomia uncatispica Trelease, sp. nov.

Herba majuscula glabra, caule breviusculo crassiusculo, internodiis brevibus; folia alterna oblanceolata sensim acutata basi cuneata 14–16 cm. longa 4–6 cm. lata ubique pinnatinervia, petiolo 2 cm. longo; spicae in paniculam simplicem ramulum lateralem terminantem dispositae ad nodos paniculae solitariae uncatae graciles 70 mm. longae, pedunculo 5 mm. longo; bracteae rotundo-peltatae.

Junín: Schunke Hacienda above San Ramón, 1,400–1,700 meters, *Killip & Smith 24578* (type in U. S. Nat. Herb.).

Peperomia undeninervia C. DC. in DC. Prodr. 16, pt. 1: 441. 1869.

A glabrous, rather large, suberect herb; stem not sulcate; leaves 2, or upward 3, at a node, elliptic, subacuminate, 6–10 cm. long, 2.5–4 cm. wide, 11-nerved; spikes terminal and from the upper axils, gently curved, 70–100 mm. long, 4 mm. thick; peduncle 10 mm. long; bracts subovate-peltate; ovary ovoid; stigma subapical. Neg. 8533.

Type collected in Peru, *Pavón.*—Junín: Colonia Perené, *Killip & Smith 25404.*

As now understood, this is scarcely separable from *P. septemnervis.*

Peperomia vana Trelease, sp. nov.

Herba parva repens plus minusve crispo-pubescens, stolonibus elongatis filiformibus foliis rotundatis alternis 5 mm. latis onustis, *P. rotundifoliae* similis, ramulis floriferis brevibus erectis, foliis ellipticis vel lanceolato-ellipticis 10–11 mm. longis 5 mm. latis; spicae graciles 25 mm. longae, pedunculo 5 mm. longo; bracteae rotundo-peltatae.

Junín: Schunke Hacienda above San Ramón, 1,400–1,700 meters, *Killip & Smith 24614* (type in U. S. Nat. Herb.), *24838.*

Peperomia variculata Trelease, sp. nov.

Herba glabra repens epiphytica, caule gracili; folia alterna late elliptica subabrupte obtuso-acuminata basi acuta 5-nervia, in sicco fusca tenuia, supra nigro-puncticulata, petiolo gracili 5–10 mm. longo; spicae terminales et ex axillis superioribus, juvenes 25 mm. longae 1 mm. crassae.

Junín: Cahuapanas, 340 meters, *Killip & Smith 26792* (type in U. S. Nat. Herb.).

Peperomia variegata R. & P. Fl. 1: 33. *pl. 52.* 1798. *Piper variegatum* Pers. Syn. 1: 35. 1805.

A stoloniferous, glabrous herb; leaves ovate, alternate, abruptly subacuminate, peltate above the slightly retuse base, 12–15 cm. long, 10 cm. wide, about 7-nerved, with the upper laterals above the others; petiole 6–8 cm. long; spikes 1 or 2, on a terminal stalk 3 cm. long, 150 mm. long, 5 mm. thick; peduncle 1.5–2 cm. long; bracts round-peltate; ovary obliquely scutulate, with central stigma.

Huánuco: Chachahuassi, *Ruiz & Pavón,* type.

Peperomia variifolia C. DC. in DC. Prodr. 16, pt. 1: 462. 1869.

A moderately small, crisp-tomentulose herb; stem 2 mm. thick, striate; leaves characteristically 5 at a node, elliptic or suboblong, obtuse, acute-based, 20 mm. long, 10 mm. wide, or the upper 10 mm. long and 4 mm. wide, 3-nerved; petiole 1 mm. long; spikes from the upper axils, scarcely 10 mm. long; peduncle very short; bracts round-peltate; stigma oblique. Neg. 25254.

Type from Peru, *Poeppig*.

Peperomia ventricosicarpa Trelease, sp. nov.

Herba subparva erecta plus minusve ramosa glabra mollis aliquid roseo-tincta, caule 2–3 mm. crasso; folia alterna ovata obtuse acuminata basi cordata 3.5 cm. longa 2 cm. lata 5-nervia, costa superne 2-ramosa, in sicco tenuia pellucida, petiolo 1–2 cm. longo; spicae terminales graciles laxiflorae 40–50 mm. longae, pedunculo 1 cm. longo; bracteae rotundo-peltatae; baccae substipitatae rotundo-lageniformes, stigmate apicali.

Loreto: Soledad, Río Itaya, 110 meters, *Killip & Smith 29800* (type in U. S. Nat. Herb.).

Peperomia verediana Trelease, sp. nov.

Herba mediocris assurgens glabra, caule 2–3 mm. crasso; folia alterna ovata sensim subacuta basi rotundata et margine minute cordulata, 5.5–6.5 cm. longa 3.5–4 cm. lata 5-nervia, petiolo 2 cm. longo; inflorescentia non visa.

Loreto: Caballo-cocha, *Llewelyn Williams 2139* (herb. Field Mus. No. 608,592, type).

Peperomia verruculosa Dahlst. ex Hill, Ann. Bot. 20: 406. *pl. 29*. 1906; 21: 149. 1907.

A small, glabrous, acaulescent herb closely resembling *P. parvifolia* but with more ovoid, verruculose berries.

Cuzco: Near Sacsaihuamán, Cuzco, 3,700 meters, *Hill 182*, type; *Herrera 2197a*.—Junín: Between Tarma and Oroya, 4,000 meters, *Weberbauer 2544*.—Lima: Río Blanco, 4,500 meters, rocky summits, *2979*. Lima-Oroya Railway, 4,400 meters, *Weberbauer 305*.

Peperomia Vidaliana Trelease, sp. nov.

Herba glabra roseo-tincta, caule gracili; folia alterna lanceolato-elliptica utrinque acuta 5.5 cm. longa 1–2 cm. lata, inferiora reducta, 5-nervia, petiolo 5 mm. longo; spicae subterminales, juvenes 10 mm. longae 1 mm. crassae, pedunculo brevi.

Type from Ecuador or Peru, *Vidal-Sénège* in 1876–77 (type in herb. Paris).

Peperomia villicaulis C. DC. Bot. Jahrb. 40: 264. 1908.

A rather small herb, densely villous throughout; leaves opposite, ovate, obtuse at both ends, 22 mm. long, 16 mm. wide, 5-nerved, the petiole very short; spikes axillary, 35 mm. long, 1 mm. thick; peduncle 5 mm. long; bracts round-peltate; ovary obovoid; stigma oblique.

Junín: Below Palca, on cliffs, 2,400–2,700 meters, *Weberbauer 1744*, type.

Peperomia villipetiola C. DC. in Lec. Notul. Syst. 3: 43. 1914.

A small, acaulescent herb with villous axes; leaves round-elliptic, very obtuse, cordate, about 3 cm. long, 2.5 cm. wide, 7-nerved; petiole 2 cm. long; spikes scarcely 5 mm. long, 1 mm. thick; panicled at the top of a scape surpassing the leaves; bracts round-peltate.

Type from Ecuador or Peru, *Vidal-Sénège* in 1876–77.

Peperomia viracochana Trelease, sp. nov.

Herba subparva caespitosa assurgens, caule graciusculo 1–2 mm. crasso cinereo-puberulo; folia ad nodum 2–4 elliptica utrinque subacuta parva 2–2.5 cm. longa 1.5 cm. lata in sicco subtenuia conspicue venulosa 3-nervia, costa ramosa, utrinque subpersistente puberula, petiolo vix 5 mm. longo plus minusve puberulo; spicae terminales vel in verticillis axillaribus et foliis delapsis false paniculatae 30 mm. longae 1 mm. crassae laxiflorae, pedunculo 1 cm. longo puberulo; bracteae rotundo-peltatae; baccae rotundatae submucronatae, stigmate obliquo.

Cuzco: Temple of Viracocha near Tinta, 3,500 meters, *Cook & Gilbert 218* (type in U. S. Nat. Herb.).

Peperomia Weberbaueri C. DC. Bot. Jahrb. 40: 255. 1908.

A rather large, suberect, glabrous herb; stem 5 mm. thick; leaves alternate, elliptic-oblong, subacute at both ends, 8–10 cm. long, 2–3 cm. wide, 7-nerved; petiole 2–4 cm. long; spikes 2–5 at the end of a slender terminal stalk 6–8 cm. long and few-bracted at the top, 20–100 mm. long, 2 mm. thick; peduncle 15–30 mm. long; bracts round-peltate; ovary round, subsessile; stigma terminal.

Amazonas: Near Chachapoyas, on shaded cliffs, 1,600 meters, banks of Río Utcubamba, *Weberbauer 4306*, type.

Peperomia yananoensis Trelease, sp. nov.

Herba parvula longivillosa subcaespitosa, caule subgracili 2–3 mm. crasso; folia alterna rotundata vel rotundo-ovata vel inferiora latiora quam longa obtusa basi subacuta 1.5–3 cm. longa 1.5–2.5 cm. lata submultiplinervia, nervis basilaribus 1–2, nervo uno utroque latere e medio nascente, utrinque villosa, petiolo 5–10 mm. longo villoso; spicae axillares (folia fulcrantes saepe delapsa) 25 mm. longae 1 mm. crassae sublaxiflorae glabrae, pedunculo brevi 5 mm. longo glabrato; bracteae rotundo-peltatae.

Huánuco: Yanano, 1,800 meters, *Macbride 3741* (herb. Field Mus. No. 534,803, type).

Peperomia yananoensis var. **caniana** Trelease, var. nov.

Folia minora; spicae filiformes, pedunculo gracillimo.

Huánuco: Cani near Mito, 2,550 meters, *Macbride 3460* (herb. Field Mus., type).

Peperomia yapasana Trelease, sp. nov.

Herba majuscula epiphytica *P. Schunkeanae* similis, sed folia non peltata, caule 5 mm. crasso et ultra breviter intertexto-villoso; folia alterna ovata acuta basi rotundata 16–20 cm. longa 12–15 cm. lata e 2 tertiis inferioribus submultiplinervia, in sicco tenuia brunnea, pagina inferiore in vivo rubra breviter adpresso-subhirsuta vel sericea, supra glabrescentia, petiolo 10–15 cm. longo molliter piloso; spicae oppositifoliae 200 mm. longae 5 mm. crassae, pedunculo 5 cm. longo piloso; bracteae rotundo-peltatae.

Junín: Yapas, Pichis Trail, 1,350–1,600 meters, *Killip & Smith 25478* (type in U. S. Nat. Herb.).

2. POTHOMORPHE Miq.

Shrubs or large herbs; leaves large and broad, cordate at the base, thin, often peltate; spikes very dense, long and slender, subumbellate at the end of an axillary peduncle, the flowers sessile, perfect; stamens 2 or 3. A small genus, but widely distributed in tropical America.

Leaves not peltate.....*P. Dombeyana.*
Leaves peltate.....*P. peltata.*

Pothomorphe Dombeyana Miq. Syst. 211. 1843; Ill. Piper. *pl. 26. Piper peltatum* R. & P. non L. *Piper umbellatum* Auct. as to Peru.

Plants suffrutescent; leaves round-reniform or openly cordate, acuminate, becoming 20 cm. wide, somewhat velvety or crisp-pubescent and ciliate, glandular-granular, multiple-nerved, with about 14 basal or nearly basal nerves and one pair from somewhat above the base, the petiole 6–10 cm. long, winged, somewhat hairy; spikes umbellate on an axillary stalk 4 cm. long, 90 mm. long and 3 mm. thick or larger, the peduncle 1 cm. long.

Huánuco: Type from Cochero, *Dombey.* Chinchao, *Ruiz & Pavón 1–98.*—Amazonas: San Isidro, *Tessmann 4999.*—Junín: Chanchamayo Valley, 1,500 meters, *Schunke 1241, 1238.*—Loreto: San Lorenzo, *Killip & Smith 29205.*—Without locality: *Ruiz; Haenke; Poeppig 1389, 57; Mathews 1701.*

Pothomorphe peltata (L.) Miq. Comm. Phyt. 37. 1839. *Piper peltatum* L. Sp. Pl. 30. 1753. *Heckeria peltata* Kunth, Linnaea 13: 565. 1839.

Scarcely different from the preceding except that the leaves are peltate far above the base; it is found sometimes in much smaller-leaved forms.

Loreto: Caballo-cocha, in forest, *Williams 2103.* Pebas, *Williams 1650.* Near Iquitos, *Williams 1346, 8189.* Mishuyacu, 100 meters, *Klug 1422, 295.* La Victoria, *Williams 3101, 2567.* Pinto-cocha, edge of forest, *Williams 831.* Paraíso, Alto Itaya, 145 meters, *Williams 3205.* Santa Rosa, in clearing, 200 meters, *Williams 4947.* —San Martín: Río Mayo, Tarapoto, 400–900 meters, in forest, *Williams 6243.* Widely distributed in tropical America. "Santa María."

3. PIPER L.

Shrubs or small trees, or the plants sometimes almost wholly herbaceous, rarely scandent; leaves alternate, the stipules adnate to the base of the petiole, or connate into one stipule opposite the leaf, sometimes reduced to a dilation at the base of the petiole; flowers densely crowded in the spike, subtended by peltate or rarely concave bracts. A vast group, probably with a greater number of species than any other genus of tropical American plants. Some of the Old World species furnish such important products as black pepper, but the American species have few economic applications, and none of importance.

A. Leaves palmately nerved.

Leaves commonly about half as broad as long.

Leaves cordate at the base; petiole winged..... *P. sororium.*

Leaves not cordate at the base; petiole exceptionally winged.
Leaf base unguiculately inrolled; leaves glabrate. *P. unguiculatum.*
Leaf base not unguiculate.
Leaves elliptic.
Leaves glabrous..... *P. Herrerae.*
Leaves pubescent..... *P. intonsum.*
Leaves ovate; stigmas on a disk..... *P. reticulatum.*
Leaves more elongate.
Leaves elliptic..... *P. heptandrum.*
Leaves both lanceolate and elliptic..... *P. Sellertianum.*
Leaves lanceolate..... *P. paralaevigatum.*

A. Leaves pinnately or multiple nerved.
B. Midrib subequally branched throughout.
C. Leaves inequilateral and petiole winged.
Leaves about half as broad as long, obtuse at the base.
Leaves about 12 cm. long, not mottled, cordulate at the base. *P. tuberculatum.*
Leaves about 15 cm. long, not cordulate at the base.
Leaves brown-lepidote-mottled..... *P. nanayanum.*
Leaves not mottled..... *P. excessum.*
Leaves more elongate.
Leaf base obtuse, at least on one side.
Leaves 10–12 cm. long..... *P. yurimaguasanum.*
Leaves becoming 16 cm. long..... *P. sericeonervosum.*
Leaves distinctly larger.
Petiole suppressed on one side..... *P. claudicans.*
Petiole developed on both sides.
Leaves 20 cm. long and 8 cm. wide..... *P. iquitosense.*
Leaves 25 cm. long and 10 cm. wide..... *P. pebasense.*
Leaf base appreciably acute.
Leaves subelliptic.
Leaves 10–15 cm. long..... *P. san-roqueanum.*
Leaves becoming 20 cm. long..... *P. fortalezanum.*
Leaves narrowly lanceolate..... *P. serpavillanum.*

C. Leaves equilateral or else petiole not winged.
D. Leaves scarcely over 10 cm. long.
Leaves about half as broad as long.
Leaves scarcely 3 cm. wide; petiole often winged. *P. phthinotrichon.*
Leaves 4–5 cm. wide; petiole not winged..... *P. daedalum.*
Leaves more elongate.
Leaves rugulose, pubescent..... *P. stupposum.*
Leaves not rugulose, at most puberulent.
Peduncle 5 mm. long..... *P. mediocre.*
Peduncle 10 mm. long..... *P. recreoense.*
D. Leaves commonly 10–15 cm. long.
E. Leaves about half as broad as long.
Stigmas sessile.
Berries angular..... *P. asterocarpum.*
Berries not angular.
Plants not glandular-granular..... *P. multimammosum.*
Plants glandular-granular..... *P. heterophyllum.*
Stigmas on a style.
Spikes scarcely 20 mm. long.
Leaves glabrous..... *P. Peltobryon.*
Leaves pilosulous..... *P. brevispicatum.*
Spikes about 30 mm. long.
Style stout..... *P. dichotomum.*
Style slender..... *P. neglectum.*
Spikes about 50 mm. long; style slender.... *P. tenuistylum.*
E. Leaves more elongate.
Leaves at most transiently or obscurely puberulent.
Stigmas on a style.
Spikes 5 mm. thick..... *P. illautum.*
Spikes slender..... *P. stenostachys.*
Stigmas sessile.
Spikes short and thick.
Berries wrinkled.
Leaves oblanceolate..... *P. obovatum.*
Leaves lanceolate..... *P. rugosibaccum.*

Berries smooth.
Leaves scarcely 4 cm. wide.
Nerves impressed.....*P. gilvibaccum.*
Nerves not impressed.
Leaves glabrous.....*P. oblongatilimbum.*
Leaves somewhat puberulent...*P. lanceolatum.*
Leaves 4–5 cm. wide, sometimes not elongated.
P. sangorianum.
Leaves 5–6 cm. wide, drying black..*P. epunctatum.*
Spikes moderately elongate.
Leaf base nearly equilateral.
Leaf base obscurely bicalloused...*P. huacachianum.*
Leaf base not bicalloused.
Leaves 5–6 cm. wide.
Leaves not glandular-punctulate.
P. san-ramonense.
Leaves pale-punctulate.....*P. dispansum.*
Leaves black-punctulate.....*P. Mocco-mocco.*
Leaves scarcely 5 cm. wide.
Longer nerves 10×2.....*P. pernigricans.*
Longer nerves more numerous....*P. curvatum.*
Leaf base inequilateral.
Leaves black-punctulate.....*P. Durvilleanum.*
Leaves not glandular-punctulate.....*P. expolitum.*
Leaves more or less pubescent beneath only, the spikes short and thick.
Twigs puberulent.....*P. timbuchianum.*
Twigs crisp-pubescent.
Nerves puberulent beneath.....*P. sapoto-yacuense.*
Nerves crisp-pubescent beneath.
Leaves lepidote-dotted.....*P. perpurgatum.*
Leaves not lepidote.....*P. ascendentispicum.*
Twigs and nerves stiff-villous.....*P. gratum.*
Twigs and nerves slightly strigose.....*P. rugosilimbum.*
Leaves rough or pubescent on both sides.
Leaves granular-scabrous above.....*P. Mathewsii.*

Leaves crisp-pubescent.
Spikes slender.
Leaves soft-hairy.....*P. calamistratum.*
Leaves bearded.....*P. setigerum.*
Spikes 4 mm. thick.....*P. satisfactum.*
Spikes 7 mm. thick.....*P. musteum.*

D. Leaves becoming over 15 cm. long.
F. Leaves about half as broad as long.
Stigmas on a style.
Leaves not cordate at the base.....*P. barbulantherum.*
Leaves cordate at the base.
Petiole very short.....*P. cordatum.*
Petiole longer than the sinus.....*P. magnificum.*
Stigmas sessile.
Spikes short and thick.
Leaves subauricled-cordulate.....*P. interitum.*
Leaves scarcely cordulate.....*P. asclepiadifolium.*
Spikes elongate.
Leaves about 9 cm. wide, glabrous, black-dotted.
Spikes spreading.....*P. heterophyllum.*
Spikes ascending.....*P. punctatum.*
Leaves distinctly larger.
Leaves at most obscurely puberulent...*P. roqueanum.*
Leaves more or less stellately pubescent.
Leaves shallowly cordate at the base.
P. asterotrichum.
Leaves obliquely subtruncate at the base.
P. tridentipilum.

F. Leaves more elongate.
Stigmas on a style.
Spikes short and thick.
Leaves cordulate at the base.
Leaves glabrous.....*P. conispicum.*
Leaves pubescent.....*P. sapotoanum.*
Leaves hirsute.....*P. circumspectantis.*
Leaves not cordulate at the base, hairy.

Leaves 4 cm. wide, narrowly lanceolate... *P. cirratum.*
Leaves 6–8 cm. wide, lance-elliptic..... *P. soledadense.*
Spikes elongate but thick; leaf base acute; leaves glabrous.
Leaves oblanceolate-oblong..... *P. costatum.*
Leaves elliptic-subobovate.
Peduncle 1 cm. long; spikes 50 mm. long. *P. pseudo-munchanum.*
Peduncle 2 cm. long; spikes longer..... *P. longifolium.*
Peduncle longer..... *P. pseudo-curvatum.*
Stigmas sessile.
G. Spikes elongated.
Leaves glabrous, fully 10 cm. wide.
Peduncle elongate..... *P. casapiense.*
Peduncle short and curved..... *P. tocacheanum.*
Leaves more or less pubescent.
Leaves about 10 cm. wide.
Nerves 12 on each side..... *P. cahuapanasense.*
Nerves 8 on each side..... *P. marcescentispicum.*
Leaves 6 cm. wide.
Nerves subvillous beneath..... *P. indecorum.*
Nerves hispid-hirsute..... *P. san-nicolasense.*
G. Spikes shorter and relatively thicker.
Leaves lance-oblong.
Leaves glabrous.
Leaf base acute.
Leaves 8 cm. wide..... *P. maranyonense.*
Leaves 5–6 cm. wide..... *P. yessupianum.*
Leaf base obtuse..... *P. faecatum.*
Leaves crisp-hairy beneath..... *P. Klugianum.*
Leaves soft-hirsute, rugulose..... *P. dasyoura.*
Leaves yellow-villous..... *P. leticianum.*
Leaves elliptic-subovate.
Leaves glabrous.
Spikes blunt..... *P. bermudezense.*
Spikes pointed.

Berries truncate..... *P. itayanum.*
Berries pointed..... *P. ratisportanum.*
Leaves pubescent beneath, about 10 cm. wide, not cordate.
Pubescence crisp..... *P. balsapuertanum.*
Pubescence tomentose..... *P. mishuyacuense.*
G. Spikes comparatively slender.
Leaves glabrous: black-punctulate.
Peduncle 5 mm. long; spikes cuspidate.. *P. restrictum.*
Peduncle twice as long.
Nerves straight..... *P. fagifolium.*
Nerves upcurved.
Leaves elliptic-ovate..... *P. positum.*
Leaves elliptic-oblong.
Nerves nearly horizontal..... *P. phegophyllum.*
Nerves ascending..... *P. auristellanum.*
Leaves more or less villous.
Leaves glabrous above; spikes 100 mm. long. *P. monzonense.*
Leaves pubescent on both sides; spikes shorter.
Leaves 5 cm. wide..... *P. Spruceanum.*
Leaves 8–9 cm. wide..... *P. affictum.*
B. Midrib without strong ascending branches upcurved.
H. Leaves scarcely over 10 cm. long.
I. Leaves about half as broad as long.
Stigmas on a style; leaf base appreciably acute; leaves glabrate.
Leaves bicalloused at the base..... *P. callosum.*
Leaves not calloused at the base.
Leaves glabrous..... *P. nasutum.*
Leaves transiently puberulent..... *P. tristigmum.*
Stigmas sessile; leaf base appreciably obtuse.
Leaves glabrous above.
Leaves glabrous beneath.
Leaves scarcely cordate at the base.. *P. pseudobarbatum.*
Leaves cordate at the base.

Spikes thick.....*P. llatanum.*
Spikes slender.....*P. Carpunya.*
Leaves pubescent beneath at least on the nerves, cordulate.
Spikes slender.
Leaves elliptic.....*P. monostigmum.*
Leaves ovate.....*P. Mohomoho.*
Spikes 5 mm. thick.....*P. stomachicum.*
Leaves pubescent on both sides.
Plant scrambling.
Leaves scabrous.....*P. cinereoramulum.*
Leaves not scabrous.....*P. silvioberrans.*
Plant not scrambling.
Leaves scarcely 5 cm. long.....*P. redactum.*
Leaves larger.
Twigs and leaves scabrous.
Petiole and peduncle short.....*P. obesum.*
Petiole and peduncle 10–15 mm. long.....*P. Opizii.*
Twigs gray-pubescent.....*P. leucofustum.*
Twigs silky.
Leaves cordate at the base.....*P. anonymum.*
Leaves merely cordulate at the base.*P. tenebricosum.*

I. Leaves more elongate.
Leaves glabrous above between the nerves.
Leaves glabrous beneath.
Spikes elongate.....*P. comasense.*
Spikes short.....*P. arduum.*
Leaves pubescent beneath, at least on the nerves.
Plant climbing.....*P. adreptum.*
Plant straggling.....*P. strigillosicaule.*
Plant neither climbing nor scrambling.
Leaves 1 cm. wide.....*P. Dennisii.*
Leaves 3–4 cm. wide.
Twigs glabrous.....*P. Lehmannianum.*
Twigs transiently puberulent.....*P. delatum.*
Leaves rough or pubescent on both sides.
Spikes short and thick.

Plant climbing.....*P. acreanum.*
Plant not climbing.
Petiole broadly winged.....*P. ciniflonis.*
Petiole not winged.....*P. apurimacanum.*
Spikes moderately elongate.
Twigs glabrous.....*P. pontis.*
Twigs somewhat scabrous.....*P. leucophaeum.*
Twigs appressed-pubescent.
Leaves not scabrous, gray.....*P. posusanum.*
Leaves scabrous.
Nerves appressed-pubescent beneath..*P. masiseanum.*
Nerves hirsute beneath.....*P. paucartamboanum.*
Twigs crisp-hispid.
Twigs not granular.....*P. brachytrichum.*
Twigs pale-granular.....*P. subflavicans.*
Twigs shaggy-hirsute.
Leaves white-granular.....*P. margaritatum.*
Leaves hairy-scabrous.....*P. incomptum.*
Leaves soft-pubescent.....*P. stupposum.*
Twigs soft-hirsute.....*P. gracile.*
H. Leaves commonly 10–15 cm. long.
J. Leaves about half as broad as long.
K. Leaf base appreciably acute.
Nerves not deeply impressed.
Leaves glabrous above between the nerves.
Leaves glabrous beneath.
Stigmas sessile.
Leaves hard and thick.....*P. edurum.*
Leaves thin.
Leaves granular, not venose.
Leaves 12 cm. long.....*P. factum.*
Leaves 15 cm. long.....*P. heterophyllum.*
Leaves venose.....*P. nuncupatum.*
Stigmas on a style.
Leaves bicalloused at the base.....*P. callosum.*
Leaves not calloused at the base.....*P. Peltobryon.*

Leaves puberulent beneath on the nerves.... *P. resatum.*
Leaves crisp-pubescent beneath on the nerves. *P. quimirianum.*
Leaves strigose beneath on the nerves. *P. brevestrigillosum.*
Leaves pubescent on both sides..... *P. brevispicatum.*
Nerves deeply impressed.
Nerves numerous.
Plant glabrous, or the petiole subpuberulent. *P excultum.*
Plant pubescent, at least locally..... *P. lineatum.*
Nerves few; leaves coriaceous..... *P. carpapatanum.*
K. Leaf base appreciably obtuse.
L. Leaves glabrous above.
M. Leaves glabrous beneath; stigmas sessile.
Spikes short and thick.
Leaf base rounded..... *P. ecallosum.*
Leaf base cordulate..... *P. mikaniaefolium.*
Spikes elongate.
Leaves cordate at the base..... *P. cocherense.*
Leaves cordulate at the base.
Berries round..... *P. arrectispicum.*
Berries triquetrous.
Leaves 6 cm. wide..... *P. demoratum.*
Leaves larger..... *P. planipes.*
Leaves neither cordate nor cordulate at the base.
Leaf base equilateral.
Twigs hollow..... *P. excavatum.*
Twigs solid.
Leaves 5–6 cm. wide.
Spikes rather thick.
Spikes 80 mm. long..... *P. Churumayu.*
Spikes 40 mm. long..... *P. tumidicondyli.*
Spikes slender..... *P. laurinum.*
Leaves broader..... *P. Macbrideanum.*
Leaf base shorter on one side.

Spikes moderate.
Plant not black-granular..... *P. urubambanum.*
Plant black-glandular..... *P. conditum.*
Spikes very thick..... *P. sandianum.*
M. Leaves pubescent beneath, at least on the nerves
Leaves bullulate-rugose; peduncle long.... *P. areolatum.*
Leaves coarsely subrugose.
Twigs glabrous.
Bracts yellow..... *P. chromatolepis.*
Bracts pale and inconspicuous.... *P. achromatolepis.*
Twigs puberulent..... *P. santiaganum.*
Twigs velvety, pale-granular..... *P. paganicum.*
Leaves not rugose.
Leaves cordulate at the base.
Twigs glabrous.
Nerves appressed-pubescent beneath . *P. tabinense.*
Nerves tomentulose..... *P. coactaepilum.*
Twigs transiently hispid..... *P. huallaganum.*
Leaves not cordulate at the base.
Leaf base equilateral.
Leaves elliptic..... *P. albogranulatum.*
Leaves ovate..... *P. munyanum.*
Leaf base shorter on one side... *P. machupicchuense.*
L. Leaves rough or pubescent on both sides.
Spikes short and thick; stigmas on a style. *P. lagenaebaccum.*
Spikes elongate; stigmas sessile.
Leaves not scabrous.
Leaves lanceolate, bullulate..... *P. verruculaefolium.*
Leaves broadly ovate.
Leaves rugose, villous..... *P. suffruticosum.*
Leaves not rugose.
Leaves not cordulate at the base.
P. huacapistanum.
Leaves cordulate or cordate at the base.
Leaves round-ovate..... *P. lamasense.*
Leaves elliptic..... *P. pichisense.*

Leaves scabrous.
Leaves becoming rugose.
Leaves obliquely cordulate at the base.
Internodes short..... *P. rubiginosum.*
Internodes long..... *P. caballo-cochanum.*
Leaves not cordulate at the base.
Spikes 80–100 mm. long.
Nerves subhirsute beneath; leaves elliptic. *P. malifolium.*
Nerves short-pubescent..... *P. ucayalianum.*
Spikes twice as long..... *P. mundum.*
Leaves scarcely rugose.
Leaf base equilateral.
Twigs velvety-pilose..... *P. glabrius.*
Twigs upcurved-hairy..... *P. patens.*
Leaf base oblique.
Leaves subvillous..... *P. pseudo-mollicomum.*
Leaves closely pubescent, narrow-acuminate. *P. amnigaudens.*

J. Leaves more elongate.
N. Leaf base appreciably acute.
Nerves deeply impressed..... *P. subflavispicum.*
Nerves not deeply impressed.
Stigmas on a style; spikes short; leaves narrow.
Leaves glabrous..... *P. stenostachys.*
Leaves somewhat pubescent..... *P. Claudii.*
Stigmas sessile.
O. Leaves glabrous above between the nerves.
P. Leaves glabrous beneath.
Spikes short.
Leaves scarcely punctulate; spikes cuspidate. *P. recensitum.*
Leaves black-punctulate.
Leaves bicalloused at the base. *P. pseudo-callosum.*
Leaves not bicalloused.

Spikes cuspidate..... *P. arreptum.*
Spikes not cuspidate.
Petiole very short..... *P. reductipes.*
Petiole 5–10 mm. long.
Nerves 4×2..... *P. morator.*
Nerves 3×2..... *P. incitum.*
Spikes elongated.
Spikes U-shaped..... *P. Opizianum.*
Spikes nearly straight.
Leaves narrowly lanceolate.
Leaves short-pointed..... *P. cumbasonum.*
Leaves long-acuminate..... *P. ostii.*
Leaves lance-elliptic.
Petiole very short..... *P. apus.*
Petiole 5–10 mm. long.
Leaves 3–4 cm. wide..... *P. temptum.*
Leaves wider.
Leaves glandular-granular. *P. gilvescens.*
Leaves scarcely granular . *P. veredianum.*

P. Leaves pubescent beneath, at least on the nerves.
Spikes rather short.
Leaves narrowly lanceolate..... *P. mansericheanum.*
Leaves lance-elliptic..... *P. monostigmum.*
Spikes elongate; leaves lance-elliptic.
Leaves slightly rugose..... *P. seminitidulum.*
Leaves scarcely rugose.
Nerves puberulent beneath. *P. chanchamayanum.*
Nerves appressed-pubescent beneath.
Twigs granular.
Twigs crisp-pubescent..... *P. portalense.*
Twigs strigillose..... *P. strigillosum.*
Twigs glabrous..... *P. pleninervosum.*
Twigs not granular, glabrous..... *P. subtextum.*
Nerves crisp-pubescent beneath.
Leaves lance-ovate..... *P. paraguassuanum.*
Leaves lance-elliptic..... *P. dendropse.*

Nerves subvillous beneath; leaves lanceolate.
P. kimpitirikianum.

O. Leaves rough or pubescent on both sides.
Spikes strongly curved..... *P. ollantaitambanum.*
Spikes nearly straight.
Leaves scarcely scabrous.
Leaves lepidote; spikes pointed, 70 mm. long.
P. desultorium.
Leaves soft-hairy; spikes about 60 mm. long.
P. amphitrichum.
Leaves scabrous.
Leaves bullulate-lacunose.
Pubescence yellow..... *P. crocatum.*
Pubescence pale..... *P. pseudo-matico.*
Leaves rugose.
Leaves 4 cm. wide, lance-ovate, acute only.
P. ictum.
Leaves 5 cm. wide, lanceolate, acuminate.
P. occultum.
Leaves neither rugose nor bullulate.
Nerves appressed-pubescent beneath.
P. longegerminatum.
Nerves spreading-pubescent beneath.
Twigs gray-pubescent..... *P. perenense.*
Twigs hispid.
Petiole 10 mm. long..... *P. asperifolium.*
Petiole half as long.
Leaves shorter on one side.
P. porveniricola.
Leaves equilateral.
Petiole hirsute..... *P. subpatens.*
Petiole scabrous..... *P. pervulgatum.*
Nerves subvillous beneath..... *P. mercedense.*

N. Leaf base appreciably obtuse.
Nerves deeply impressed.
Nerves 8 or 9 on each side..... *P. lanceaefolium.*

Nerves half as many; leaves lanceolate, long-attenuate. *P. callcanense.*

Nerves not lineately impressed.

Leaves glabrous.

Spikes short; plant black-punctulate.

Twigs glabrous..... *P. semicrudum.*

Twigs hirtellous..... *P. paludosum.*

Spikes elongate..... *P. oblongatifolium.*

Leaves more or less pubescent beneath, at least upon the nerves.

Nerves merely puberulent; leaves dimorphic. *P. rubribaccum.*

Nerves appressed-pubescent beneath.

Twigs pale-granular.

Leaves broadly lanceolate.

Nerves 3–4 × 2..... *P. papillipetiolatum.*

Nerves 5–6 × 2..... *P. indianonum.*

Leaves lance-oblong..... *P. Lehmannianum.*

Twigs scarcely granular..... *P. semicordulatum.*

Twigs velvety..... *P. fulvescenticaule.*

Twigs gray-pubescent..... *P. griseocaule.*

Nerves crisp-pubescent beneath; leaves acuminate. *P. aleyreanum.*

Nerves velvety beneath; leaves bullulate. *P. santa-ritanum.*

Nerves hirsute beneath..... *P. dimetrale.*

Leaves rough or pubescent on both sides.

Leaves scarcely scabrous.

Spikes curved.

Twigs glabrous, granular.

Spikes short and thick; stigmas on a style. *P. lagenaebaccum.*

Spikes longer; stigmas not on a style. *P. granulosum.*

Twigs gray-pubescent..... *P. griseum.*

Twigs velvety..... *P. Kanehiranum.*

Twigs hirsute-villous.
Leaves lanceolate..... *P. mellibractum.*
Leaves lance-ovate..... *P. velutinum.*
Leaves lance-elliptic..... *P. praeclarum.*
Spikes nearly straight.
Twigs crisp-pubescent..... *P. pseudo-flexuosum.*
Twigs villous.
Peduncle short..... *P. puniceum.*
Peduncle 25 mm. long..... *P. heterocarpum.*
Leaves scabrous.
Spikes nearly straight.
Leaves not rugose.
Twigs subtomentose..... *P. longeacuminatum.*
Twigs strigillose..... *P. cispontinum.*
Twigs hispid.
Leaves scabrous in spots..... *P. scabiosifolium.*
Leaves uniformly scabrous.
Leaves 4–5 cm. wide..... *P. oculatispicum.*
Leaves 6–7 cm. wide.
Midrib stiff-bristly..... *P. setulosum.*
Midrib hirsute.
Peduncle slender..... *P. rasile.*
Peduncle short and thick..... *P. celer.*
Twigs subvillous.
Leaves 4–5 cm. wide..... *P. lanosicaule.*
Leaves 6–8 cm. wide.
Peduncle 10 mm. long..... *P. Schunkeanum.*
Peduncle 5 mm. long.. *P. pseudo-mollicomum.*
Leaves rugose..... *P. Uleanum.*
Spikes curved.
Leaves not rugose.
Plants climbing..... *P. volubile.*
Plants not climbing.
Twigs quickly glabrous.
Twigs pale-granular.

Leaves cordulate at the base.
P. camphoriferum.
Leaves not cordulate at the base.
P. glaberrimicaule.
Twigs not granular; leaves cordulate at the base.....*P. cocherense.*
Twigs at first crisp-pubescent, granular.
P. subflavicans.
Twigs soft-hairy.
Twigs granular.....*P. chalhuapuquianum.*
Twigs not granular.....*P. moyobambanum.*
Leaves somewhat rugose, cordulate.
Leaves subvillous beneath.....*P. mellibracteum.*
Leaves strigillose beneath.
Twigs not scabrous.....*P. granulosum.*
Twigs transiently scabrous...*P. asperrimicaule.*
Leaves bullulate, cordulate.....*P. elongatum.*

H. Leaves characteristically becoming over 15 cm. long.
Q. Leaf base appreciably acute.
Stigmas on a style.
Leaves glabrous, glandular-punctulate, sharp-acuminate.
P. propinquum.
Leaves puberulent beneath on the nerves.....*P. anastylum.*
Leaves stellate-pubescent beneath.....*P. jaculifolium.*
Leaves crisp-subvillous; spikes large.....*P. pubinervulum.*
Stigmas sessile.
Leaves glabrous.
Leaves drying glossy-bronzed.....*P. politaereum.*
Leaves drying green.
Leaves black-glandular-punctulate.....*P. peruvianum.*
Leaves scarcely punctulate.
Petiole 10–15 mm. long.
Leaves subovate-elliptic.....*P. viridilimbum.*
Leaves elliptic.....*P. dulce.*
Petiole scarcely 5 mm. long.
Spikes very long.....*P. soricicaudatum.*

Spikes rather short.
Spikes curved.....*P. reductipes.*
Spikes nearly straight.....*P. subsessile.*
Leaves somewhat puberulent or pubescent beneath.
Leaves about half as broad as long.....*P. huanucanum.*
Leaves more elongate.
Twigs pale-granular.....*P. contamanum.*
Twigs scarcely granular.
Leaf base equilateral.....*P. relaxatum.*
Leaf base shorter on one side.
Nerves puberulent.....*P. huantanum.*
Nerves crisp-pubescent.....*P. fuscispicum.*
Nerves substrigose.....*P. pullispicum.*
Leaves rough or pubescent on both sides.
Spikes nearly straight.
Leaves scarcely rugose.
Twigs glabrescent and granular....*P. verruculaecaule.*
Twigs sparsely subvillous.....*P. offensum.*
Twigs hirsute.
Spikes 4 mm. thick.....*P. afflictum.*
Spikes 2 mm. thick.
Leaves sparsely hairy beneath.....*P. aegrum.*
Leaves glabrous between the nerves.
P. leucophaeocaule.
Leaves becoming rugose.....*P. paraisense.*
Spikes large and curved.
Leaves scabrous.....*P. dasyoura.*
Leaves merely lepidote.....*P. granuligerum.*
Q. Leaf base appreciably obtuse.
R. Stigmas on a style.
Spikes short and thick.
Leaves about half as broad as long.
Leaves barely 10 cm. wide, cordate at the base.
Leaves glabrescent above.
Nodes, only, hairy.....*P. moense.*
Axes hairy.....*P. xapurayense.*

Leaves villous throughout..... *P. dasypodum.*
Leaves wider, subtruncate at the base.
P. constipatispicum.
Leaves more elongate.
Leaves cordate at the base..... *P. villosispicum.*
Leaves not cordate at the base..... *P. tortuosivenosum.*
Spikes elongate.
Leaves auricled, elongate.
Leaves glabrous..... *P. longestamineum.*
Leaves puberulent..... *P. longifilamentosum.*
Leaves somewhat cordate.
Leaves glabrous.
Leaves 10–18 cm. wide..... *P. Sumpi.*
Leaves 10 cm. wide..... *P. Endlicherianum.*
Leaves stellately crisp-pubescent.
Spikes slender..... *P. formosum.*
Spikes stout..... *P. mite.*
Leaves subvillous.
Petiole 2 cm. long..... *P. Pavoni.*
Petiole short..... *P. glabribaccum.*
Leaves neither cordate nor auricled.
Leaves glabrous.
Twigs glabrous..... *P. Hookerianum.*
Twigs hirtellous.
Spikes 100 mm. long; peduncle slender.
P. ovantherum.
Spikes much longer; peduncle thick..... *P. apodum.*
Leaves pubescent beneath.
Twigs glabrous..... *P. sciaphilum.*
Twigs subpuberulent..... *P. immite.*
Twigs stellate-pubescent..... *P. sidipilum.*
Twigs crisp-pubescent.
Spikes 10 mm. thick..... *P. crassamentum.*
Spikes 5 mm. thick..... *P. attenuatamentum.*
Twigs subvillous.
Leaves about half as broad as long.. *P. cassinoides.*

Leaves more elongate.
Spikes scarcely 50 mm. long...*P. transpontinum.*
Spikes over 100 mm. long, 5 mm. thick.
P. resalutatum.
Twigs cobwebby.
Leaves stellate-pubescent beneath.
Spikes rather slender.....*P. brevipedunculum.*
Spikes 5–7 mm. thick.....*P. ornithorhynchum.*
Leaves villous beneath.
Leaves 10 cm. wide.....*P. carrapanum.*
Leaves broader.....*P. araneatum.*
Leaves pubescent on both sides.
Leaves rugose.....*P. trichostylum.*
Leaves not rugose.....*P. trichostylopse.*

R. Stigmas sessile.
S. Leaves about half as broad as long, or auricled if longer.
Leaves peltate, glabrous.....*P. subscutatum.*
Leaves not peltate.
T. Leaves glabrous.
Leaves round-subtruncate at the base.
P. paulianifolium.
Leaves cordulate at the base.
Leaves narrowed to the base....*P. parvicordulatum.*
Leaves round-based.....*P. subcordulatum.*
Leaves equilaterally cordate at the base.*P. cocherense.*
Leaves very oblique at the base.
Leaves 16 cm. long; spikes slender.....*P. Restio.*
Leaves larger.
Leaves obliquely cordate at the base, paler beneath.....*P. azupizuanum.*
Leaves auricled on one side.
Leaves pale beneath.....*P. pallididorsum.*
Leaves not pale beneath.....*P. obliquum.*
Leaves auricled, with lateral sinus.
Leaves round-obovate.....*P. calvibaccum.*
Leaves round-elliptic.....*P. procerum.*

T. Leaves puberulent or pubescent beneath, at least on the nerves.

Leaves round-subtruncate at the base.

Nerves puberulent beneath.

Leaves 18 cm. long.

Leaves round-ovate.....*P. abditum.*

Leaves elliptic-ovate.....*P. tingens.*

Leaves lance-ovate.....*P. yananoanum.*

Leaves larger.....*P. pseudo-churumayu.*

Nerves crisp-pubescent beneath..*P. albopapillatum.*

Nerves tomentulose beneath.....*P. scapispicum.*

Nerves villous beneath.....*P. parcepilosum.*

Leaves truncate-subcordate at the base.

Leaves bullulate-alveolate.

Spikes straight, 100 mm. long.....*P. alveolatum.*

Spikes curved, much longer.....*P. perareolatum.*

Leaves not bullulate.....*P. euryphyllum.*

Leaves equilaterally cordate at the base.
P. franciscanum.

Leaves inequilaterally shallow-cordate at the base.
P. riojanum.

Leaves very oblique at the base.

Leaves auricled, with basal sinus.

Petiole shorter on one side.

Twigs glabrous.

Nerves puberulent beneath.

Spikes constricted spirally.*P. ligatispicum.*

Spikes not constricted.

Leaves not pentagonal..*P. obovatifolium.*

Leaves somewhat pentagonal, bronzed.
P. cupreatum.

Nerves velvety beneath.

Leaves round-ovate.....*P. pubibaccum.*

Leaves elongate-ovate.*P. velutininervosum.*

Twigs cobwebby.....*P. acutulum.*

Petiole equilong on both sides.

Nerves merely puberulent..... *P. obliquum.*
Nerves subtomentose..... *P. controversum.*
Nerves villous beneath..... *P. calvescentinerve.*
Leaves auricled, with lateral sinus.
Nerves puberulent beneath.
Twigs glabrous.
Leaves elliptic..... *P. celsum.*
Leaves obovate..... *P. sanguineispicum.*
Twigs puberulent.
Leaves subobovate..... *P. cinereonervosum.*
Leaves elliptic..... *P. capillistipes.*
Nerves striate-hairy beneath .... *P. striatinervosum.*
Nerves crisp-pubescent beneath. *P. ferruginispicum.*
Nerves villous beneath.
Leaves broad..... *P. confusionis.*
Leaves narrow.
Leaves subrugose-pouched, subobtuse.
P. marsupiiferum.
Leaves not rugose, acute, lanceolate.
P. escaleranum.

T. Leaves rough or pubescent on both sides.
Leaves neither cordate nor auricled at the base.
Leaves inequilateral at the base.
Twigs scabrous..... *P. scabricaule.*
Twigs loosely subvillous..... *P. loretoanum.*
Twigs gray-hairy
Leaves not rugose..... *P. canescenticaule.*
Leaves becoming rugose..... *P. serotinum.*
Leaves equilateral at the base..... *P. late-ovatum.*
Leaves deeply cordate at the base.
Leaves obscurely rugulose..... *P. indiciflexum.*
Leaves bullulate..... *P. acutifolium.*
Leaves auricled at the base, red-villous.
Leaves elliptic-obovate..... *P. pervillosum.*
Leaves oblong-obovate..... *P. strigosum.*

S. Leaves more elongate.
Leaves glabrous.
Leaves elliptic-oblong.....*P. secundum.*
Leaves lanceolate.....*P. oblongatum.*
Leaves pubescent beneath, at least on the nerves.
Leaves equilateral at the base.
Spikes long; leaves not cordulate at the base.
P. Brongniartii.
Spikes short; leaves cordulate at the base.
Spikes not cuspidate.....*P. mitifolium.*
Spikes cuspidate.....*P. rhinostachyum.*
Leaves inequilateral at the base.
Leaf base subacute.
Spikes 65 mm. long.....*P. subandinum.*
Spikes 100 mm. long.....*P. ucayalianum.*
Leaf base cordulate.
Leaves lance-oblong.
Peduncle elongate.....*P. pothophyllum.*
Peduncle short.....*P. puberulescens.*
Leaves lanceolate.....*P. scalariforme.*
Leaves oblanceolate.....*P. tenuicuspe.*
Leaf base cordate.....*P. sagittifer.*
Leaf base auricled.....*P. escaleranum.*
Leaves rough or pubescent on both sides.
Leaves inequilateral at the base.
Leaves neither cordate nor cordulate at the base.
Leaves rugose.
Petiole suppressed on one side....*P. immutatum.*
Petiole evident.....*P. diversipilum.*
Leaves not rugose.
Leaves soft-pubescent above....*P. chrysoneurum.*
Leaves very granular-roughened.
Spikes curved.....*P. scabridulicaule.*
Spikes not strongly curved.....*P. tardum.*
Leaves cordulate at the base.
Spikes straight or slightly curved.

Leaves not rugose.....*P. Lechlerianum.*

Leaves rugose-bullulate.....*P. verbascifolium.*

Spikes strongly curved.

Leaves neither rugose nor bullulate.
P. elongatifolium.

Leaves somewhat rugose and scabrid.

Bracts inconspicuous.....*P. Stuebelii.*

Bracts conspicuous, pale.....*P. Stevensi.*

Leaves bullulate-lacunose.....*P. elongatum.*

Leaves equilaterally cordate at the base.

Spikes rather short.....*P. ulceratum.*

Spikes long and curved.

Leaves scarcely scabrous, elliptic, acuminate.
P. barbicuspe.

Leaves scabrous, lance-oblong, acuminate.
P. martinense.

Piper abditum Trelease, sp. nov.

Frutex 2-metralis nervis subtus griseo-puberulis exceptis glaber, internodiis gracilibus modice elongatis; folia rotundato-ovata breviter acuminata basi rotundata, uno latere paullo breviore, 15–18 cm. longa 10–13 cm. lata e dimidio inferiore pinnatinervia, nervis 5×2, petiolo 10–30+2 mm. longo, longioribus caduce alatis; spicae juveniles parvae graciles.

Loreto: Yurimaguas, 135 meters, *Killip & Smith 27659* (type in U. S. Nat. Herb.).

Piper achromatolepis Trelease, sp. nov.

Frutex nervis subtus puberulis exceptis glaber, internodiis floriferis brevibus crassis; folia late ovata breviter acuminata basi aequilaterali obscure cordulata 14–16 cm. longa 9–10 cm. lata e 2 tertiis inferioribus pinnatinervia, nervis circa 6×2 ut venis longioribus impressis, petiolo 1–2 cm. longo concavo fragiliter alato; spicae 120 mm. longae 3 mm. crassae; pedunculus 15 mm. longus 2 mm. crassus; bracteae inconspicuae subpeltatae.

Loreto: Fortaleza, Yurimaguas, 155–210 meters, *Williams 4244* (herb. Field Mus. No. 624,649, type). Iquitos, *Killip & Smith 27254*. "Cordoncillo."

Piper acreanum C. DC. Notizbl. Bot. Gart. Berlin 7: 486. 1917.

A climbing shrub, rooting from the nodes, somewhat crisp-pubescent except for the upper side of the leaves; leaves elliptic, subacuminate, subequilaterally acute at the base or distinctly obtuse or even cordulate, 10–11 cm. long, 4–5 cm. wide, pinnately nerved from the lower half, the nerves 4–5×2; petiole 10 mm. long; spikes about 15 mm. long, 6 mm. thick, blunt; peduncle slender, 10 mm. long; berries globose; stigmas 3, linear sessile.

Type from Seringal Auristella, Rio Acre, Brazil, *Ule 9294*.—Loreto(?): Río Purús, *Ule*.

Piper acutifolium R. & P. Fl. 1: 38. *pl. 64*. 1798. *Steffensia acutifolia* Kunth, Linnaea 13: 650. 1839. *Artanthe acutifolia* Miq. Syst. 428. 1844; Ill. Piper. *pl. 78*.

A shrub; twigs yellow-villous; leaves lance-ovate, gradually acute, inequilaterally cordate at the base with the longer side auriculately cordate, bullulate, hairy on both sides and becoming scabrous above from the bases of fallen hairs, 21–28 cm. long, 8–13 cm. wide, subpinnately nerved from the lower half, the nerves about 5+7; petiole barely 10 mm. long, hairy; spikes 3–4 mm. thick, 80 mm. long, straight; peduncle 15 mm. long, thinly hairy; bracts rounded-subpeltate, honey-colored with a yellow ciliate border.

Huánuco: Cochero and Posuso, *Ruiz & Pavón*, type.—Cordillera valleys, *Haenke 64*.

Piper acutifolium var. **Stuebelii** Trelease, var. nov.

Folia late ovata basi fere aequilaterali cordata 25–26 cm. longa 15–19 cm. lata conspicue bullulata supra glabrescentia, subtus ut petiolus crassus 4 cm. longus intertexto-villosa.

Amazonas: Near Chachapoyas, *Stuebel 69* (herb. Berol., type), *21* (herb. Berol.).

Piper acutulum Trelease, sp. nov.

Arbor 6–8-metralis, internodiis floriferis modice gracilibus et elongatis araneoso-villosis; folia elliptico-ovata acuta basi inaequilatera, latere longiore late auriculato et petiolo longiore, 33 cm. longa 17 cm. lata e dimidio inferiore subpinnatinervia, nervis 5–6×2 superne puberulis, in sicco tenuia subtus lucida, petiolo 55+5 mm. longo alato ut caule et basi costae subvilloso; spicae 400 mm. longae 5 mm. crassae, pedunculo 2 cm. longo plus minusve piloso, bracteae rotundo-subpeltatae; baccae depresso-globosae glabrae; stigmata 3 filiformia sessilia.

Junín: San Nicolás, Pichis Trail, 1,100 meters, *Killip & Smith 26014* (type in U. S. Nat. Herb.).

Piper adreptum Trelease, sp. nov.

Frutex gracilis scandens essentialiter glaber, internodiis elongatis; folia lanceolata acuta vel anguste acuminata basi acuta 5.5–8 cm. longa 1.5–3 cm. lata e dimidio inferiore pinnatinervia, nervis circa 5×2 inferne sensim approximatis, interdum subtus adpresso-sericeis, petiolo 5 mm. longo exalato; spicae 100 mm. longae 5 mm. crassae rectae mucronatae, pedunculo 3–5 mm. longo; bracteae rotundo-subpeltatae ciliolatae; baccae breviter cylindraceae truncatae; stigmata minuta sessilia.

Loreto: Mishuyacu, 100 meters, *G. Klug 1394* (herb. Field Mus. No. 627,627, type).

Piper aegrum Trelease, sp. nov.

Frutex 3–5-metralis, internodiis floriferis gracilibus subelongatis hirsutis; folia elliptica acuminata basi fere aequilateraliter acuta, 18–20 cm. longa 7.5–8 cm. lata, e dimidio inferiore pinnatinervia, nervis 5×2 supra minute scabro-pubescentibus, subtus ad nervos, inter nervos sparsius, hirsuta, petiolo 10–15 mm. longo hirsuto; spicae juveniles 90 mm. longae 2 mm. crassae, pedunculo gracili 10 mm. longo plus minusve piloso.

Junín: Puerto Bermúdez, 375 meters, *Killip & Smith 26478* (type in U. S. Nat. Herb.).

Piper affictum Trelease, sp. nov.

Frutex 2–3-metralis ubique laxe longe crispo-pilosus, internodiis floriferis breviusculis crassiusculis; folia elongata elliptica acuminata basi inaequali-acuta 20–25 cm. longa 8–9 cm. lata e 2 tertiis inferioribus pinnatinervia, nervis elevatis circa 6×2, petiolo 15–20 mm. longo exalato; spicae 40 mm. longae 3 mm. crassae, pedunculo gracili 15 mm. longo; bracteae rotundo- vel triangulari-subpeltatae ciliolatae; ovarium teres, stigmatibus 3 sessilibus.

Loreto: Balsapuerto, 150–350 meters, *Killip & Smith 28581* (type in U. S. Nat. Herb.), *28563*.

Piper afflictum Trelease, sp. nov.

Frutex, ramis, petiolo atque nervis subtus subvilloso-hirsutis; folia lanceolato-elliptica acuminata basi subaequilaterali acuta, 14–19 cm. longa 5–9 cm. lata e dimidio inferiore pinnatinervia, nervis 5–6×2 supra dense albido-scabris, petiolo 10 mm. longo; spicae 100–

130 mm. longae 3–4 mm. crassae, pedunculo 10 mm. longo; bracteae rotundo-subpeltatae.

Loreto: Mainas, *Poeppig* in 1830 (type in herb. Vienna). La Victoria, edge of forest, *Williams 2699*. Iquitos, *Killip & Smith 27469, 27067*. Balsapuerto, *Killip & Smith 28426*. San Antonio, *Killip & Smith 29293*. "Cordoncillo."

Piper albogranulatum Trelease, sp. nov.

Frutex 2-metralis, internodiis subgracilibus et elongatis puberulis; folia elliptico-suboblonga abrupte acuto-acuminata basin obtusum versus angustata 11–14 cm. longa 5–7 cm. lata e 2 tertiis inferioribus pinnatinervia, nervis 6×2, in sicco tenuia, subtus microscopice albo-puncticulata et ad nervos puberula, petiolo 1 cm. longo puberulo inferne alato; inflorescentiae non visae.

Loreto: Santa Rosa, 135 meters, *Killip & Smith 28883* (type in U. S. Nat. Herb.).

Piper albopapillatum Trelease, sp. nov.

Frutex 3-metralis nervis subtus paullo crispo-puberulis exceptis glaber, internodiis gracilibus elongatis in sicco fuscis et microscopice albo-puncticulatis; folia ovata anguste acuminata basi obtusa, margine altero latere abrupte subacuto et longiore, 20 cm. longa 10–12 cm. lata e dimidio inferiore vel magis inferne submultiplinervia, nervis 5+6, petiolo 10+5 mm. longo vel in foliis inferioribus longiore vaginante albo-puncticulato; spicae adhuc parvae et juveniles.

Junín: Schunke Hacienda, San Ramón, 1,400–1,700 meters, *Killip & Smith 24616* (type in U. S. Nat. Herb.).

Piper aleyreanum C. DC. Notizbl. Bot. Gart. Berlin 6: 488. 1917.

A shrub with subretrorsely soft-hairy twigs; leaves elliptic, acuminate, slightly inequilaterally rounded at the base, 14–15 cm. long, 6 cm. wide, pinnately nerved from the lower half, the nerves about 4×2, thinly crisp-pubescent beneath with the nerves soft-hairy; petiole about 5+2 mm. long; young spikes 30 mm. long, 2 mm. thick, with a short peduncle; bracts triangular-subpeltate.

Brazil: Monte Aleyre, Seringal São Francisco, Alto Rio Acre, *Ule 9274*, type. Doubtless occurring also in adjacent Peru.

Piper alveolatum Opiz in Presl, Rel. Haenk. 155. 1830. *Artanthe alveolata* Miq. Syst. 406. 1844.

A soft-pubescent shrub; leaves ovate, acuminate, shallow-cordate, 27 cm. long, 19 cm. wide, submultiple-nerved from the

lower half, the nerves about 6×2, bullulate-lacunose, nearly or quite glabrous above; petiole 4–5 cm. long, pale-granular; spikes straight, 110 mm. long, 4 mm. thick; peduncle slender, 2 cm. long; bracts yellow-puberulent.

Huánuco: Huánuco mountains, *Haenke*, type.—Cuzco: Río Pillahuata, in forest, 2,400 meters, *Pennell 14014*.

Piper amnigaudens Trelease, sp. nov.

Frutex arborescens 4-metralis spec. *P. pseudo-mollicomum* similis nodosus, internodiis supremis brevibus subgracilibus dense hispido-pubescentibus serius scabridis; folia lanceolato-elliptica anguste acuminata basi rotundata, uno latere plus minusve breviore, 12–15 cm. longa 4.5–6.5 cm. lata e dimidio inferiore pinnatinervia, nervis circa 6×2, supra minute granuloso-scabra, nervis subtus minute excurvo-pubescentibus, petiolo circa 5+3 mm. longo; spicae 100 mm. longae 2–3 mm. crassae, pedunculo gracili 10 mm. longo subscabrido; bracteae rotundo-subpeltatae ciliatae; baccae rotundatae, stigmatibus 3 gracilibus sessilibus.

Loreto: Steep bank of Río Santiago, 200 meters, *Ynes Mexia 6332* (type in herb. Univ. Calif.).

Piper amphitrichum Trelease, sp. nov.

Frutex 3-metralis nodosus, internodiis floriferis brevibus modice crassis crispo-hirsutis; folia lanceolato-elliptica vel subrhombea acute acuminata basi inaequilaterali acuta, 10–14 cm. longa 3.5–5 cm. lata e 2 tertiis inferioribus pinnatinervia, nervis circa 6×2 utrinque rigide adpresso-pilosis, nervis subtus excurvo-hirsutis, petiolo 3+3 mm. longo exalato hirsuto; spicae 60 mm. longae 3 mm. crassae, pedunculo 10 mm. longo plus minusve crispo-piloso; bracteae subtriangulari-subpeltatae.

Junín: Colonia Perené, 680 meters, *Killip & Smith 24938* (type in U. S. Nat. Herb.).

Piper anastylum Trelease, sp. nov.

Frutex vix 2-metralis, ramis gracilibus plus minusve geniculatis, petiolo et nervis subtus obscure puberulis exceptis glaber; folia variabilia lanceolata vel lanceolato-ovata usque ad late ovata anguste acuminata basi inaequilaterali acuta, 12–15 cm. longa 5–7 cm. lata e 3 quartis inferioribus pinnatinervia, nervis 7×2, in sicco tenuia et plus minusve lucida, petiolo 10+3 mm. longo exalato; spicae 30–40 mm. longae 3 mm. crassae, pedunculo adscendente 5

mm. longo; bracteae crescentico-subpeltatae; baccae globosae, stylo gracili, stigmatibus 3 patentibus.

Junín: San Nicolás, Pichis Trail, 1,100 meters, *Killip & Smith 26015* (type in U. S. Nat. Herb.).

Piper anonymum Trelease, sp. nov.

Frutex(?), ramis longisericeis; folia ovata subacuta basi cordata 9 cm. longa 4 cm. lata e 2 tertiis inferioribus pinnatinervia, nervis circa 5×2, supra basibus pilis longis persistentibus scabra, subtus adpresso-sericea, petiolo 5–10 mm. longo sericeo; spicae 80 mm. longae 3 mm. crassae acuminatae, pedunculo 5–10 mm. longo griseo-hispido.

"Peruvia subandina," *Poeppig 73* (herb. Paris, type).

Piper apodum Trelease, sp. nov.

Arbor gracilis 5-metralis nodosa, internodiis floriferis elongatis crassiusculis sparsissime vel ad nodos densius hirtellis; folia ovato-lanceolata vel late ovata sensim acuminata basi subaequaliter rotundata, magna 16–35 cm. longa 8–23 cm. lata, e tertio infimo submultiplinervia, nervis 5–7×2, glabra, petiolo 2–5 cm. longo plus minusve hirtello anguste alato; spicae oppositifoliae rectae magnae 200 mm. longae et 8 mm. crassae vel majores, pedunculo crassissimo brevi 8 mm. longo 5 mm. crasso velutino; bracteae rotundo-subpeltatae ferrugineo-ciliatae, floribus sessilibus perfectis; stigmata 3 recurva essentialiter sessilia.

Huánuco: Muña, 2,100 meters, *Macbride 3987* (herb. Field Mus. No. 535,049, type).

Piper apurimacanum Trelease, sp. nov.

Frutex 1.5 m. altus gracilis nodosus, internodiis floriferis brevibus gracilibus pilis arcte adpressis canescentibus; folia subrhombeo-lanceolata vel lanceolato-elliptica anguste falcato-acuminata basi inaequilaterali acuta 9–10 cm. longa 2.5–4 cm. lata e dimidio inferiore pinnatinervia, nervis circa 5×2, supra minute adpresso-pubescentia vel subscabrida in statu adulto glabrata et opaca, nervis subtus breviter adpresso-pubescentibus, petiolo vix 2+2 mm. longo ut caule pubescente; spicae curvae 30 mm. longae 3 mm. crassae, pedunculo filiformi 10 mm. longo ut caule pubescente; bracteae subtriangulari-subpeltatae albae; baccae subglobosae, stigmatibus 3 minutis sessilibus.

Ayacucho: Río Apurímac near Kimpitiriki, 400 meters, *Killip & Smith 22926* (type in U. S. Nat. Herb.).

Piper apus Trelease, sp. nov.

Frutex 3–4-metralis nodosus glaber, internodiis floriferis brevibus gracilibus; folia lanceolata longiacuminata basi inaequilaterali acuta 15 cm. longa 5–6 cm. lata e dimidio inferiore pinnatinervia, nervis 5+6, in sicco tenuia subtus viridia pallidiora, petiolo latere longiore nullo altero 5 mm. longo, lamina decurrente, non vaginante; spicae juveniles 20 mm. longae 2 mm. crassae, pedunculo 5 mm. longo; bracteae rotundo-subpeltatae.

Junín: Santa Rosa, Pichis Trail, 625–900 meters, *Killip & Smith 26192* (type in U. S. Nat. Herb.).

Piper araneatum Trelease, sp. nov.

Arbor 4–5-metralis, internodiis floriferis elongatis gracillimis laxe subaraneoso-villosis; folia ovata acute attenuata basi rotundata abrupte ad petiolum contracta, 18–26 cm. longa 8–15 cm. lata e dimidio inferiore submultiplinervia, nervis 5–6×2, supra albo-puncticulata, subtus sparse stellato-pubescentia, nervis subhirsutis, petiolo 10–20+2 mm. longo vaginante pallido-villoso; spicae in anthesi 80 mm. longae 5 mm. crassae, pedunculo gracili breviter villoso 15 mm. longo recurvo; bracteae rotundo-subpeltatae pilosae.

Junín: Colonia Perené, 680 meters, *Killip & Smith 25242* (type in U. S. Nat. Herb.).

Piper arduum Trelease, sp. nov.

Frutex gracilis glaber obscure nigro-puncticulatus, internodiis floriferis gracilibus breviusculis; folia sublate lanceolata sensim acute subacuminata basi acuta e dimidio inferiore pinnatinervia, nervis superioribus cum costa venis circa 3 obscuris reticulatis transversis connexis, petiolo gracili 10 mm. longo exalato; spicae 12 mm. longae 4 mm. crassae obtusae, pedunculo 5 mm. longo recurvo; bracteae rotundo-subpeltatae anguste marginatae; baccae globosae mucronatae, stigmatibus parvis sessilibus.

Loreto: Puerto Arturo, Yurimaguas, 155–200 meters, in forest, *Llewelyn Williams 5174* (herb. Field Mus. No. 618,063, type).

Piper areolatum (Miq.) C. DC. in DC. Prodr. 16, pt. 1: 303. 1869. *Artanthe areolata* Miq. Lond. Journ. Bot. 4: 454. 1866.

A shrub, loosely villous except for the glabrous upper leaf surface; leaves ovate, subacuminate, obtuse at the base, 14 cm. long, 7.5 cm. wide, pinnately nerved from the lower half, the nerves about

5×2, bullulate; petiole 2–3 cm. long, winged; spikes flexuous, 125 mm. long, 4 mm. thick, slender; peduncle slender, 5 cm. long. Neg. 8401.

Amazonas: Sierra de Chachapoyas, *Mathews 3227*, type.

Piper arrectispicum Trelease, sp. nov.

Frutex nodosus glaber, internodiis floriferis modice gracilibus brevibus in sicco luteis; folia elliptica acuminata basi acuta, inferiora ovata et cordulata, 13 cm. longa 6–7 cm. lata e tertio inferiore submultiplinervia, nervis 4–5×2, coriacea revoluta subtus pallidiora, petiolo 6 mm. longo exalato vel in foliis inferioribus duplo longiore et alato; spicae fructiferae 65 mm. longae 3–4 mm. crassae propter pedunculum 7 mm. longum primo curvum serius rectum suberectae; bracteae crescenticae; baccae globosae vel subtruncatae, stigmatibus 3 minutis sessilibus.

San Martín: San Roque, in forest, 1,350–1,500 meters, *Llewelyn Williams 6993* (herb. Field Mus. No. 629,617, type). "Cordoncillo."

Piper arreptum Trelease, sp. nov.

Arbor 3–5-metralis gracilis glaber, internodiis floriferis brevibus gracilibus; folia lanceolato-oblonga vel elliptico-oblonga acute longiacuminata basi inaequilaterali acuta 12–15 cm. longa 4–4.5 cm. lata e dimidio inferiore pinnatinervia, nervis 5×2, in sicco tenuia viridia, petiolo 5–10 mm. longo exalato; spicae 30 mm. longae 4 mm. crassae caudatae, pedunculo 5 mm. longo; bracteae triangulari-subpeltatae ciliolatae; baccae rubro-brunneae globosae obscure mucronatae, stigmatibus 3 sessilibus.

Junín: Puerto Bermúdez, 375 meters, *Killip & Smith 26487* (type in U. S. Nat. Herb.).

Piper ascendentispicum Trelease, sp. nov.

Frutex 1.5 m. altus, internodiis floriferis brevibus gracilibus evanescente paullo crispo-pubescentibus; folia elliptica vel oblonga abrupte acuminata basi subaequilaterali acuta vel in foliis latioribus obtusa 8–12 cm. longa 4–6 cm. lata ubique pinnatinervia, nervis longioribus 6×2, subtus ad nervos sparse crispo-pubescentia, petiolo 5–10 mm. longo; spicae floriferae 12 mm. longae 4 mm. crassae non cuspidatae, pedunculo adscendente 4 mm. longo 2 mm. crasso; bracteae crescenticae.

Junín: Cahuapanas, 340 meters, *Killip & Smith 26724* (type in U. S. Nat. Herb.).

Piper asclepiadifolium Trelease, sp. nov.

Frutex 2–3-metralis glabratus, internodiis floriferis brevibus fistulosis sordido-puberulis; folia late elliptica abrupte breviacuminata basi fere aequilaterali rotundata 15–17 cm. longa 8–9 cm. lata ubique pinnatinervia, nervis 8–10×2, subtus ad nervos cinereo-puberula et inter nervos obscure pallido-granulosa, petiolo 5 mm. longo exalato; inflorescentia non visa.

Loreto: Iquitos, *Killip & Smith 27016* (U. S. Nat. Herb.).

Piper asperifolium R. & P. Fl. 1: 37. *pl. 56*. 1798. *Steffensia asperifolia* Kunth, Linnaea 13: 644. 1839. *Artanthe asperifolia* Miq. Syst. 441. 1844.

A hispid or crisp-pubescent shrub; leaves elliptic or sublanceolate, acuminate, subacute at the base, 9–14 cm. long, 4–6 cm. wide, pinnately nerved from the lower half, the nerves about 5+2, closely short-scabrous above, paler and dark-punctulate beneath with spreading-hairy nerves; petiole 10 mm. long; spikes 80 mm. long, 3 mm. thick; peduncle 10–15 mm. long; bracts transversely subpeltate, ciliate. Neg. 8402.

Huánuco: Type from Pillao (*Ruiz* in Herb. Willdenow, *No. 674*, and *No. 16* in general herbarium, at Berlin; *Pavón*, at Kew).

Piper asperrimicaule Trelease, sp. nov.

Frutex 3-metralis nodosus, internodiis floriferis brevibus gracilibus primo scabro-pubescentibus serius glabris et pallido-granulosis; folia lanceolata subacuminata attenuata basi inaequilaterali cordulata 10–12 cm. longa 4 cm. lata e dimidio inferiore pinnatinervia, nervis 4+5, subrugosa, supra albo-granuloso-scabra, subtus ad nervos strigillosa, petiolo 5 mm. longo scabrido; spicae arcuatae 80 mm. longae 3 mm. crassae obtusae; pedunculo 5 mm. longo punctulato; bracteae rotundo-subpeltatae.

Loreto: Yurimaguas, 135 meters, *Killip & Smith 27955* (type in U. S. Nat. Herb.).

Piper asterocarpum Trelease, sp. nov.

Frutex (?) glaber non glanduloso-punctulatus, ramulis gracilibus; folia lanceolato-ovata subacuminata basi acuta 12 cm. longa 5 cm. lata fere ubique pinnatinervia in sicco tenuia, petiolo 10 mm. longo exalato; spicae 90 mm. longae 4–5 mm. crassae, pedunculo 10 mm. longo; baccae depresso-globosae profunde 4-sulcatae submucronatae, stigmatibus parvis in mucrone insertis.

Type without data, from Peru (?), in Herb. Endlicher at Vienna.

Piper asterotrichum C. DC. Verh. Bot. Ver. Brandenb. 47: 111. 1905.

A glandular-granular shrub, tufted-pubescent except for the upper leaf surface; leaves 22–25 cm. long, 11–15 cm. wide; abruptly short-acuminate, nearly equilaterally shallow-cordate; petiole 2–3 cm. long; spikes becoming 50 mm. long, 10 mm. thick; peduncle scarcely 10 mm. long; stigmas sessile.

Loreto: Iquitos, *Ule 6247*, type.

Piper asterotrichum var. **yessupense** Trelease, var. nov.

Arbor 4–6-metralis sparse transiente barbato-pubescens; folia lata ovata vix cordata 24 cm. longa 16 cm. lata; spicae juveniles 20 mm. longae 4 mm. crassae luteae, pedunculo 10 mm. longo.

Junín: Puerto Yessup, 400 meters, *Killip & Smith 26271* (type in U. S. Nat. Herb.).

Piper attenuatamentum Trelease, sp. nov.

Arbor 4–5-metralis, internodiis floriferis brevibus gracilibus sparse transiente crispo-pilosis; folia ovata anguste acuminata basi rotundata 26 cm. longa 13 cm. lata e dimidio inferiore submultiplinervia, nervis 5–6×2 subtus crispo-pilosis, petiolo 2 cm. longo alato laxe crispo-piloso; spicae fructiferae 100–120 mm. longae 5 mm. crassae, pedunculo compresso 7 mm. longo subpiloso; bracteae crescentico-subpeltatae; baccae globosae, stylo gracili, stigmatibus 3 recurvis.

Junín: Puerto Bermúdez, 375 meters, *Killip & Smith 26513* (type in U. S. Nat. Herb.).

Piper auristellanum C. DC. Notizbl. Bot. Gart. Berlin, 7: 488. 1917. *Piper nigropunctatum* var. *franciscoanum* C. DC. loc. cit.

A glabrous, very black-granular shrub; leaves elongate-elliptic, subacuminate, slightly inequilaterally acute at the base, 20 cm. long, 7 cm. wide, pinnately nerved nearly throughout; petiole 10+5 mm. long; young spikes 20 mm. long, 2 mm. thick; peduncle 10 mm. long.

Brazil: Seringal Auristella, Rio Acre, *Ule 9276*, type. Probably extending into adjacent Peru.

Piper azupizuanum Trelease, sp. nov.

Arbor 5–6-metralis glabra, internodiis modice elongatis; folia obliqua ovata subacuta basi inaequilaterali cordata sinu aperto 27 cm. longa 14 cm. lata e 3 quartis inferioribus subpinnatinervia,

nervis 7×2, in sicco subcoriacea opaca, petiolo 6.5+1.5 cm. longo anguste alato; spicae 350 mm. longae 5 mm. crassae, pedunculo gracili 3 cm. longo; bracteae rotundo-subpeltatae brunneo-ciliatae; baccae paullo cum rhachi elongatae, stigmatibus 3 filiformibus sessilibus.

Junín: San Nicolás to Azupizú, Pichis Trail, 650–900 meters, *Killip & Smith 26094* (type in U. S. Nat. Herb.).

Piper balsapuertanum Trelease, sp. nov.

Frutex 2–3-metralis, internodiis floriferis modice brevibus sed crassis glabratis; folia elliptico-oblonga subacuminata basi acuta, altero latere breviore, 24–27 cm. longa 11–12 cm. lata ubique pinnatinervia, nervis circa 15×2, subtus praesertim ad nervos sparse crispo-pubescentia, petiolo 10+10 mm. longo exalato; spicae juveniles 85 mm. longae 6 mm. crassae mucronatae, pedunculo 20 mm. longo 2 mm. crasso stellato-pubescente; bracteae magnae triangulari-subpeltatae ciliatae flavidae; ovarium paullo acutatum, stigmatibus 3 sessilibus.

Loreto: Balsapuerto, 150–350 meters, *Killip & Smith 28394* (type in U. S. Nat. Herb.).

Piper barbicuspe Trelease, sp. nov.

Arbor 3.5 m. alta nodosa in sicco fuscescens, internodiis floriferis breviusculis crassiusculis tomentulosis; folia elliptica acuminata, acumine in cuspem barbatum 50 mm. longum 1 mm. latum protracto, basi inaequilaterali breviter cordata 27 cm. longa 9.5 cm. lata e dimidio inferiore pinnatinervia, nervis 7–8×2, in sicco tenuia, supra ad nervos basinque sparse pilosa, in statu adulto ut videtur subtus magis persistente pilosa, petiolo crasso vix 1 cm. longo; spicae U-formes vix 150 mm. longae et 3 mm. crassae, apice barbatae, pedunculo 10–15 mm. longo velutino; bracteae triangulari-subpeltatae ciliatae; stigmata 3 digitata subsessilia.

Loreto: Mishuyacu, 100 meters, in clearing, *G. Klug 253* (herb. Field Mus. No. 629,989, type.)

Piper barbulantherum Trelease, sp. nov.

Frutex, ramis transiente crispo-villosis; folia elliptica abrupte subacuminata basi acuta 17 cm. longa 9 cm. lata ubique pinnatinervia glanduloso-granulosa, nervis subtus subadpresso-pilosis, petiolo 2 cm. longo crispo-pubescente; spicae fructiferae 150 mm. longae 15 mm. crassae leviter curvae, pedunculo 15 mm. longo 3 mm.

crasso curvo crispo-pubescente; baccae obovoideae, stylo crasso, stigmatibus magnis latis patentibus.

Piura: Cordillera east of Huancabamba, 3,000 meters, *Weberbauer 6093* (herb. Berol., type).

Piper bermudezense Trelease, sp. nov.

Frutex 2–3-metralis glanduloso-granulosa, ramis foliisque glabris, internodiis floriferis breviusculis gracilibus; folia elliptico-subovata acuminata basi inaequilaterali saltem uno latere subacuta, 27 cm. longa 11 cm. lata ubique pinnatinervia, nervis circa 15×2, petiolo 5+5 mm. longo exalato; spicae arcuatae obtusae 50 mm. longae 10 mm. latae, pedunculo 15 mm. longo 2 mm. crasso; bracteae triangulari-subpeltatae ciliatae; baccae tetragonae fulvo-velutinae, stigmatibus 3 sessilibus.

Junín: Puerto Bermúdez, 375 meters, *Killip & Smith 26424* (type in U. S. Nat. Herb.), *26674*.

Piper brachytrichum Trelease, sp. nov.

Frutex 3-metralis, internodiis floriferis subgracilibus elongatis pallide subcrispo-hispidis; folia ovato-lanceolata acute acuminata basi inaequilaterali bicordulata 10 cm. longa 4 cm. lata supra pilulis brevibus scaberrima serius lepidota, subtus pallidiora nervis molliter pubescentibus, petiolo 5+2 mm. longo exalato breviter hirsuto; spicae juveniles 60 mm. longae 3 mm. crassae, pedunculo gracili 10 mm. longo piloso.

Ayacucho: Estrella, 500 meters, *Killip & Smith 22652* (type in U. S. Nat. Herb.).

Piper brevestrigillosum Trelease, sp. nov.

Frutex (fistulosus?) nodosus 2–3-metralis, internodiis floriferis subgracilibus modice elongatis glabris; folia elliptica vel sublanceolata acuminata basi subaequilaterali acuta 12–16 cm. longa 5.5–8 cm. lata e dimidio inferiore pinnatinervia, nervis circa 6×2, supra granuloso-asperata, subtus pallidiora nervis breviter patenti-strigosis, petiolo 10 mm. longo infra medium vaginante; spicae (normales?) curvae 75 mm. longae et ultra 3 mm. crassae, pedunculo 5 mm. longo glabrato; bracteae rotundo-subpeltatae.

Ayacucho: Carrapa, 1,500 meters, *Killip & Smith 22375* (type in U. S. Nat. Herb.).

Piper brevipedunculum Trelease, sp. nov.

Arbor 3–5-metralis, trunco 5 cm. diam., internodiis floriferis gracilibus brevibus plus minusve araneosis; folia ovata acuminata

ad petiolum abrupte contracta, 15–24 cm. longa 9–15 cm. lata e dimidio inferiore submultiplinervia, nervis 5–7×2, subtus praesertim ad nervos stellato-velutina, petiolo 2 cm. longo vaginante velutino; spicae floriferae 80 mm. longae 4 mm. crassae, pedunculo vix 5 mm. longo crasso velutino; bracteae rotundo-subpeltatae ciliolatae; ovarium teres, stylo brevi, stigmatibus 3 recurvis.

Ayacucho: Estrella, 500 meters, *Killip & Smith 22677* (type in U. S. Nat. Herb.).

Piper brevispicatum Opiz in Presl, Rel. Haenk. 151. *pl. 28.* 1830.

A shrub, glabrous except that the leaves are minutely pilose on both faces; leaves subrhombic-elliptic, equally subacuminate-pointed at both ends, 12 cm. long, 5.5 cm. wide, pinnately nerved nearly throughout; petiole 10 mm. long, the blade decurrent upon it; young spikes scarcely 5 mm. long, 1 mm. thick, short-stalked.

Type locality unknown.

A very doubtful species, apparently of the *Peltobryon* group but unique in its velvety foliage.

Piper Brongniartii (Miq.) C. DC. in DC. Prodr. 16, pt. 1: 327. 1869. *Artanthe Brongniartii* Miq. Syst. 486. 1844.

A shrub, glabrous except for the puberulent nerves beneath; leaves elliptic, acuminate, almost equilaterally obtuse at the base, 17–22 cm. long, 7–15 cm. wide, pinnately nerved from the lower half, the nerves about 5+2, glossy; petiole scarcely 10 mm. long; spikes 100 mm. long, 2–3 mm. thick, flexuous; peduncle 10 mm. long.

Huánuco; Cochero, *Dombey 927* or *907*, type.

Piper caballo-cochanum Trelease, sp. nov.

Frutex, internodiis floriferis gracilibus elongatis hispidis; folia elliptico-ovata anguste acuminata basi inaequilaterali subcordulata 14–16 cm. longa 6–7.5 cm. lata e dimidio inferiore pinnatinervia, nervis 6×2, in statu adulto plus minusve rugosa, supra dense granuloso-scabra, subtus punctulata nervis incurvo-hispidis, petiolo 10+2 mm. longo; spicae 100 mm. longae 2 mm. crassae, pedunculo 10 mm. longo hispido.

Loreto: Caballo-cocha, in forest, *Llewelyn Williams 2309* (herb. Field Mus. No. 608,282, type). "Cordoncillo."

Piper cahuapanasense Trelease, sp. nov.

Frutex 2–4-metralis nodosus, internodiis floriferis breviusculis subelongatis sparse persistente crispo-barbatis; folia sublanceolato-

elliptica acute acuminata basi fere aequilaterali acuta 20–25 cm. longa 8–9 cm. lata ubique pinnatinervia, nervis circa 12×2, supra ad costam paullo longihirsuta, subtus nigro-punctulata ad nervos longihirsuta, petiolo 2 cm. longo ut caule costaque barbato exalato; spicae 100 mm. longae 2 mm. crassae, pedunculo 15 mm. longo sparse barbato; bracteae rotundo-subpeltatae; baccae subglobosae interdum ad apicem depressae mucronatae; stigmata 3 brevia in mucrone inserta.

Junín: Cahuapanas, 340 meters, *Killip & Smith 26791* (type in U. S. Nat. Herb.), *26758*.

Piper calamistratum Trelease, sp. nov.

Frutex parvus (?), internodiis gracilibus breviusculis subcrispe hirtis; folia lanceolato-elliptica acuminata basi inaequilaterali subacuta 12–14 cm. longa 3.5–4.5 cm. lata undique pinnatinervia, nervis longis circa 8×2, nervis pluribus reticulatis brevibus superne adjectis, utrinque laxe crispo-pilosa, subtus ad nervos subvillosa, petiolo 5–10 mm. longo vix alato crispo-piloso; spicae 25 mm. longae 2 mm. crassae acutatae, pedunculo filiformi 10 mm. longo; bracteae rotundo-subpeltatae; ovarium oblongo-ovoideum, apice attenuato stigmatibus 3 terminato.

Loreto: Mishuyacu, in forest, 100 meters, *G. Klug 206* (herb. Field Mus. No. 629,945, type).

Piper callcanense Trelease, sp. nov.

Frutex(?), ramulis crispo-hispidis asperis; folia lanceolata longi-attentuata basi rotundata 14 cm. longa 4 cm. lata e dimidio inferiore pinnatinervia, nervis 4–5×2 subtus valde prominentibus et subadpresso-pilosis, in sicco viridia rugosa, supra granuloso-scabra, petiolo 5 mm. longo; spicae valde curvae 60 mm. longae 3 mm. crassae, pedunculo 10 mm. longo.

Callcan, 2,400 meters, *Pearce*, November, 1864 (type in herb. Kew.).

Piper callosum R. & P. Fl. 1: 34. *pl. 53*. 1798. *Schilleria callosa* Kunth, Linnaea 13: 689. 1839. *Peltobryon callosum* Miq. Syst. 369. 1844. *Peltobryon Poeppigii* Klotzsch in Miq. Syst. 370. 1844. *Piper Poeppigii* C. DC. in DC. Prodr. 16, pt. 1: 260. 1869. *Piper callosum* var. *franciscoanum* C. DC. Notizbl. Bot. Gart. Berlin 7: 487. 1917.

A glabrous, slender-twigged shrub; leaves broadly elliptic, acuminate, the acute base bicallously inrolled, 8–12 cm. long, 4–5

cm. wide, pinnately nerved from the lower half, the nerves 3–4×2; petiole 1 cm. long; spikes 2–5 mm. thick, 10–20 mm. long, blunt; peduncle 5–10 mm. long; bracts inflexed-subpeltate; berries round, with a style; stigmas 3.

Huánuco: Pillao, *Ruiz & Pavón*, type. Cochero, *Poeppig 1783*. —Ayacucho: Aina, *Killip & Smith 22715*.—Junín: La Merced, 600 meters, *5419*. Colonia Perené, 680 meters, *Killip & Smith 24922, 25095*. Río Pinedo, *Killip & Smith 23617*. Río Paucartambo Valley, *Killip & Smith 25399*.

Piper calvescentinerve Trelease, sp. nov.

Arbor 5–6-metralis, internodiis floriferis brevibus modice crassis breviter brunnescenti-villosis; folia oblongo-obovata obtuse subacuminata basi inaequilaterali cordata sinu aperto, latere longiore duplo petiolo breviore, 29–35 cm. longa 13–16 cm. lata e 2 tertiis inferioribus pinnatinervia, nervis circa 6+7, subtus lucida costa breviter villosa, nervis glabrescentibus, petiolo 5 cm. longo alato breviter villoso; spicae juveniles 40 mm. longae 2 mm. crassae pendulae, pedunculo piloso 15 mm. longo; bracteae rotundo-subpeltatae.

Junín: Puerto Yessup, 400 meters, *Killip & Smith 26248* (type in U. S. Nat. Herb.).

Piper calvibaccum Trelease, sp. nov.

Arbor glabra, internodiis floriferis modice gracilibus elongatis nigrescentibus; folia rotundo-obovata apice rotundata, basi inaequilateralia, sinu laterali fere clauso, lobulo longiore rotundato petiolo longiore, 25 cm. longa 18 cm. lata e 2 tertiis inferioribus subpinnatinervia, nervis 6×2, nervis secundariis in auricula dispositis, in sicco tenuia, petiolo 5 cm. longo alato; spicae 300 mm. longae et ultra, 5 mm. crassae, pedunculo subgracili 10–20 mm. longo; bracteae rotundo-subpeltatae pubescentes; baccae globosae, stigmatibus 3 filiformibus sessilibus.

Junín: Chanchamayo Valley, 1,500 meters, *Carlos Schunke 1804* (herb. Field Mus. No. 625,549, type); at 1,200 meters, *Schunke 413*.

Piper camphoriferum C. DC. Ann. Cons. Jard. Genève 21: 235. 1923.

A camphor-scented shrub; twigs transiently striolate-puberulent, pale-granular; leaves lanceolate or lance-oblong, very long-attenuate, the narrowed base cordulate, 15–17 cm. long, 3–4.5 cm. wide, pinnately nerved from the lower half, the nerves about 6×2, microscopically granular-roughened, appressed-pubescent beneath toward the

ends of the nerves; petiole scarcely 5 mm. long, slightly longer on one side; spikes 100 mm. long, 3–4 mm. thick, curved; bracts lunulate-subpeltate; berries somewhat quadrate; stigmas 3, sessile. Neg. 24981.

Huánuco: Chihuangola, *Gilg 37*, type.

Piper canescenticaule Trelease, sp. nov.

Frutex 3-metralis, internodiis floriferis gracilibus breviusculis griseis pilis rigidis incurvis pilosis; folia subelliptico-ovata acuminata basi inaequilateralia, latere longiore acuto, 16–20 cm. longa 8–10 cm. lata e dimidio inferiore pinnatinervia, nervis 6–7×2, supra minute scabro-pubescentia et minute aspero-granulosa, subtus ad nervos subadpresso-strigosa, petiolo 10+5 mm. longo cinereo-piloso exalato; spicae 100 mm. longae 3 mm. crassae, pedunculo 5 mm. longo scabrido; bracteae rotundo-subpeltatae.

Loreto: Puerto Arturo, 135 meters, *Killip & Smith 27726* (type in U. S. Nat. Herb.).

Piper canescenticaule var. **expansum** Trelease, var. nov.

Folia late elliptico-subovata acuminata basi inaequilaterali subtruncata 22 cm. longa 11 cm. lata.

Loreto: Puerto Arturo, 135 meters, *Killip & Smith 27717* (type in U. S. Nat. Herb.).

Piper capillistipes Trelease, sp. nov.

Frutex 1–2-metralis, internodiis floriferis brevibus subgracilibus microscopice cinereo-puberulis; folia oblanceolata apicem obtusum versus sensim angustata, basi inaequilateralia sinu laterali fere clauso, latere longiore rotundato-auriculato, 29–33 cm. longa 13–15 cm. lata e dimidio inferiore vel paullo ultra subpinnatinervia, nervis circa 6×2, petiolo 3–5 cm. longo ut pagina inferiore laminae griseo; spicae brunneae, juveniles 20–25 mm. longae 2 mm. crassae anguste acutatae, pedunculo 20–35 mm. longo 1 mm. crasso microscopice cinereo-puberulo; bracteae rotundo-subpeltatae.

Loreto: Soledad, Río Itaya, 110 meters, *Killip & Smith 29607* (type in U. S. Nat. Herb.).

Piper carpapatanum Trelease, sp. nov.

Frutex nodosus glaber 3-metralis, internodiis floriferis subgracilibus brevibus; folia elliptico-subovata acuminata basi inaequilaterali acuta et ad petiolum decurrentia 10–13 cm. longa 4–6 cm. lata e dimidio inferiore pinnatinervia, nervis impressis 3–4×2, petiolo

10 mm. longo; spicae fructiferae 100 mm. longae 5 mm. crassae, pedunculo crasso 7 mm. longo; bracteae rotundo-subpeltatae; baccae cubicae, stigmatibus 3 parvis sessilibus.

Junín: Carpapata above Huacapistana, 2,700–3,200 meters, *Killip & Smith 24403* (type in U. S. Nat. Herb.).

Piper carrapanum Trelease, sp. nov.

Arbor 4–6-metralis, internodiis floriferis modice brevibus et crassis ferrugineo-araneosis; folia ovata acuta vel subacuminata basi paullo inaequilateralia uno latere vel utroque latere ad petiolum acute angustata, 20–22 cm. longa 9–10 cm. lata e tertio inferiore submultiplinervia, nervis 5–6×2, subtus praesertim ad nervos stellato-villosa, petiolo 20+3 mm. longo vaginante crispo-subvilloso; spicae juveniles 30 mm. longae 5 mm. crassae acutatae plus minusve pilosae.

Ayacucho: Carrapa, 1,200 meters, *Killip & Smith 22485* (type in U. S. Nat. Herb.).

Piper carrapanum var. **lancifolium** Trelease, var. nov.

Frutex 3-metralis, ramis pilis crassioribus villosis; folia lanceolata 16–17 cm. longa 7 cm. lata; spicae juveniles obtusiores.

Junín: Eneñas, Pichis Trail, 1,600–1,900 meters, *Killip & Smith 25758* (type in U. S. Nat. Herb.).

Piper Carpunya R. & P. Fl. 1: 37. *pl. 63.* 1798. *Schilleria Carpunya* Kunth, Linnaea 13: 693. 1839. *Ottonia Carpunya* Miq. Syst. 547. 1844.

A glabrous shrub; leaves ovate, acuminate, cordate at the base, 9 cm. long, 5 cm. wide, pinnately nerved from the lower half, the nerves 3×2, drying firm and revolute; petiole 10 mm. long; spikes 2–3 mm. thick, 60 mm. long; peduncle 5 mm. long; bracts incurved; berries round; stigmas 3, sessile.

Huánuco: Cochero and Chinchao, *Ruiz & Pavón*, type. Cochero, *Poeppig 1354.*

Piper casapiense (Miq.) C. DC. in DC. Prodr. 16, pt. 1: 367. 1869. *Artanthe casapiensis* Miq. Lond. Journ. Bot. 4: 463. 1866.

A glabrous, glandular-punctulate shrub; leaves elliptic-sub-oblong, slightly acuminate, subacute at the base with one side characteristically much shorter, 29–33 cm. long, 10–12 cm. wide, pinnately nerved throughout; petiole 3+1–3 cm. long; spikes

150 mm. long, 4 mm. thick; peduncle 3 cm. long; bracts triangular-subpeltate; berries round; stigmas sessile.

Huánuco: Casapí *Mathews 1722 bis*, type.—Junín: La Merced, in forest, 600 meters, *5517*. Chanchamayo Valley, 1,000–1,500 meters, *Schunke 341, 468, 447, 332*.—Loreto: Balsapuerto, *Killip & Smith 28425*.

Piper cassinoides Opiz in Presl, Rel. Haenk. 153. 1830. *Artanthe cassinoides* Miq. Syst. 490. 1844.

A shrub, glabrous except that the petioles and the nerves beneath are crisp-pubescent; leaves round-ovate, short-acuminate, subtruncate at the base but abruptly contracted to the petiole, 19 cm. long, 13 cm. wide, submultiple-nerved from below the middle, the nerves about 5×2; petiole scarcely 1 cm. long, winged; young spikes 35 mm. long, 5 mm. thick, cuspidate; peduncle 10 mm. long.

Huánuco: Huánuco mountains, *Haenke*, type.

Piper celer Trelease, sp. nov.

Frutex nodosus, internodiis floriferis brevibus et crassis hirsutis; folia elliptica acuminata basi subacuta 15–16 cm. longa 6 cm. lata e dimidio inferiore pinnatinervia, nervis 5×2, granuloso-scabra, nervis subtus hirsutis, petiolo 10 mm. longo hispido; spicae 85 mm. longae 4 mm. crassae, pedunculo crasso 5 mm. longo hispido.

Loreto: Río Itaya, *Llewelyn Williams 132* (herb. Field Mus. No. 604,312, type). Iquitos, *Killip & Smith 27059*.

Piper celsum Trelease, sp. nov.

Arbor 5–7-metralis, nervis subtus obscure puberulis exceptis glabra; folia late elliptica obtusa basi inaequilateralia, sinu laterali clauso lobo majore petiolo longiore, 35 cm. longa et 23 cm. lata vel ultra, e 2 tertiis inferioribus subpinnatinervia, nervis 6×2, nervis supplementariis in auricula majore dispositis, in sicco tenuia plus minusve lucida, petiolo 5 cm. (et ultra?) longo alato; spicae 400 mm. longae 3 mm. crassae, pedunculo 1 cm. longo; bracteae crescentico-subpeltatae; baccae rotundae glabrae, stigmatibus sessilibus.

Junín: East of Quimirí Bridge, La Merced, 800–1,300 meters, *Killip & Smith 23907* (type in U. S. Nat. Herb.).

Piper chalhuapuquianum Trelease, sp. nov.

Frutex(?), internodiis floriferis breviusculis subgracilibus transiente subvillosis serius concolori-granulosis; folia lanceolata acuminata basi inaequilaterali rotundata vel subcordulata 15 cm. longa 4.5–5

cm. lata e dimidio inferiore pinnatinervia, nervis 6–7×2, in sicco tenuia viridia, supra minute lepidoto-asperata, subtus ad nervos molliter incurvo-pilosa, petiolo 3–5+2 mm. longo incurvo-piloso; spicae oppositifoliae 100 mm. longae 3 mm. crassae valde curvae, pedunculo gracili 10–15 mm. longo molliter hirsuto; bracteae subtriangulari-subpeltatae pallidae ciliatae; baccae oblongae truncatae glabrae, stigmatibus 3 minutis sessilibus.

Junín: Hacienda Chalhuapuquio, *Stevens 104* (type), *106*, *144*.

Piper chanchamayanum Trelease, sp. nov.

Frutex nervis subtus crispo-puberulis exceptis glaber, internodiis floriferis brevibus subgracilibus; folia lanceolato-elliptica acuminata basi plus minusve inaequilaterali acuta 13–15 cm. longa 5–6 cm. lata e tertiis 2 inferioribus pinnatinervia, nervis circa 5×2, in sicco viridia subfirma, supra lucida paullo rugosa, petiolo 6+5 cm. longo exalato; spicae 100 mm. longae 3 mm. crassae obtusae, pedunculo crasso 5 mm. longo; bracteae zonatae triangulari-subpeltatae ciliolatae; baccae quadratae vel cum rhachi elongatae, stigmatibus 3 minutis sessilibus.

Junín: Chanchamayo Valley, 1,200 meters, *Carlos Schunke 1595* (herb. Field Mus. No. 627,279, type).—Ayacucho: Estrella, 500 meters, *Killip & Smith 22634*.

Piper chromatolepis Trelease, sp. nov.

Frutex plus minusve nodosus nervis subtus adpresso-pubescentibus exceptis glaber, internodiis floriferis brevibus et subcrassis; folia elliptico-ovata subabrupte breviacuminata basi aequilaterali cordulata 13–15 cm. longa 7–9 cm. lata e 2 tertiis inferioribus pinnatinervia, nervis circa 7×2 ut venis impressis, lucida, subtus pallidiora, petiolo 3 mm. longo caduce alato; spicae 130–150 mm. longae 5 mm. crassae subacutae, pedunculo 10 mm. longo 3 mm. crasso; bracteae luteae triangulari-subpeltatae ciliatae; ovarium subteres, stigmatibus 3 filiformibus sessilibus.

Loreto: South side of lower Río Nanay, in forest, *Llewelyn Williams 536* (herb. Field Mus. No. 604,014, type).

Piper chrysoneurum Trelease, sp. nov.

Frutex nodosus, internodiis floriferis gracilibus brevibus sparse breviter villosis; folia lanceolata longiacuminata basi inaequilateralia, latere breviore rotundato, 16–19 cm. longa 6–7 cm. lata e dimidio inferiore pinnatinervia, nervis 6×2, supra sparse molliter pubescentia, nervis aurantiacis vel aureis subtus pilosis, petiolo 5+2 mm. longo

inferne vaginante hirsuto; spicae juveniles 40 mm. longae 2 mm. crassae breviter pedunculatae; bracteae rotundo-subpeltatae.

Loreto: Alto Río Itaya, 145 meters, *Llewelyn Williams 3207* (herb. Field Mus., type).

Piper Churumayu R. & P. Fl. 1: 35. *pl. 58.* 1798. *Schilleria Churumayu* Kunth, Linnaea 13: 696. 1839. *Artanthe Churumayu* Miq. Syst. 481. 1844.

A glabrous shrub; leaves subovate-lanceolate, acuminate, rounded at the base, 10–14 cm. long, 4–5 cm. wide, pinnately nerved from the lower half, the nerves about 4×2; petiole 10 mm. long; spikes 5 mm. thick, 80 mm. long, straight; peduncle 5 mm. long.

Huánuco: Forests of Huassahuassi; *Ruiz & Pavón*, type; *Dombey.* "Churumayu."

Piper cinereonervosum Trelease, sp. nov.

Arbor 3–4-metralis, internodiis superioribus ut videtur elongatis ut petiolo atque nervis subtus microscopice cinereo-puberulis; folia elliptico-obovata sensim obtusa basi inaequaliter cordata, sinu laterali, uno latere rotundato altero auriculato, 38 cm. longa 22 cm. lata e dimidio inferiore vel paullo altius subpinnatinervia, nervis circa 7×2, pluribus brevioribus in auricula dispersis, petiolo 4 cm. longo alato; inflorescentiae non visae.

Loreto: San Antonio, 110 meters, *Killip & Smith 29380* (type in U. S. Nat. Herb.).

Piper cinereoramulum Trelease, sp. nov.

Frutex subscandens 3-metralis, ramis geniculatis griseis, internodiis superioribus brevibus gracilibus sericeis; folia lanceolato-ovata acute acuminata basi rotundata uno latere paullo breviore, 9–11 cm. longa 3.5–5.5 cm. lata e dimidio inferiore pinnatinervia, nervis circa 5×2, supra minute granulosa scabra, subtus ad nervos pallido-sericea, petiolo 5–10+3 mm. longo canescente; spicae 65 mm. longae 2 mm. crassae, pedunculo gracili 5 mm. longo; bracteae rotundo-subpeltatae.

Loreto: Mouth of Río Santiago, 200 meters, *Ynes Mexia 6117* (type in herb. Univ. Calif.).

Piper ciniflonis Trelease, sp. nov.

Frutex parvus, internodiis floriferis brevibus gracilibus crispe cinereo-strigillosis; folia late lanceolata subacuminata basi breviter cordata uno latere interdum breviore, 9–11 cm. longa 4–5 cm. latae

dimidio inferiore pinnatinervia, nervis circa 5×2, griseo-strigillosa, petiolo 12–15+3 mm. longo late alato cinereo; spicae juveniles 10 mm. longae 1 mm. crassae, pedunculo duplo breviore cinereo; bracteae rotundo-subpeltatae, centro fusco, margine angusto cinereo.

Junín: Santa Rosa, Pichis Trail, 625–900 meters, *Killip & Smith 26166* (type in U. S. Nat. Herb.).

Piper circumspectantis Trelease, sp. nov.

Frutex metralis nodosus, internodiis floriferis brevibus modice gracilibus laxe subcrispe hirsutis; folia elliptico-oblonga vel suboblanceolata acuta basi subaequilaterali cordulata 12–16 cm. longa 5–7 cm. lata fere ubique submultiplinervia, nervis longioribus 6×2, in sicco tenuia, subtus pallidiora nervis hirsutis, petiolo 5 mm. longo concavo hirsuto; spicae 10 mm. longae 5 mm. crassae, staminibus et stylis exsertis, pedunculo 5 mm. longo hirsuto; bracteae subcrescenticae; stigmata 3 brevia.

Loreto: Mishuyacu, 100 meters, in forest, *G. Klug 507* (herb. Field Mus. No. 629,968, type).

Piper cirratum Trelease, sp. nov.

Frutex, internodiis floriferis gracilibus breviusculis rigide subcrispo-villosis; folia lanceolata sensim acuta basi inaequaliter acuta 16 cm. longa 4 cm. lata ubique pinnatinervia, nervis majoribus circa 5×2, brevioribus superne reticulatis, sparse utrinque crispo-pilosa, petiolo fere nullo crispo-piloso alato; spicae fructiferae 20 mm. longae 8 mm. crassae, pedunculo sursum curvato gracili 5 mm. longo crispo-piloso; baccae globosae; bracteae rotundo-subpeltatae, stigmatibus 3 brevistylosis.

Loreto: La Victoria on the Amazon River, edge of forest, *Llewelyn Williams 2969* (herb. Field Mus. No. 608,159, type).

Piper cispontinum Trelease, sp. nov.

Frutex nodosus 3–4-metralis, internodiis floriferis breviusculis gracilibus incurvo-hirsutis; folia lanceolato-elliptica anguste falcato-acuminata basi inaequilaterali angusta obtusa vel cordulata 11–16 cm. longa 4–6 cm. lata e 2 tertiis inferioribus pinnatinervia, nervis circa 6×2, supra adpresso-scabra, subtus substrigosa, petiolo vix 3+3 mm. longo hispido; spicae juveniles 55 mm. longae 3 mm. crassae, pedunculo 7 mm. longo scabrido; bracteae rotundo-subpeltatae.

Junín: Near Perené Bridge, Río Paucartambo, 700 meters, *Killip & Smith 25284* (type in U. S. Nat. Herb.).

Piper claudicans Trelease, sp. nov.

Arbor gracilis 6-metralis nodosa, internodiis floriferis brevibus cito crassis tuberculatis luteo-subtomentosis; folia elliptico-suboblonga sensim acutata basi rotundata, latere majore sessili altero 15 mm. breviore, 22–20 cm. longa 7–10 cm. lata ubique pinnatinervia, in sicco tenuia subtus molliter ferrugineo-pilosa, petiolo alato; spicae 100 mm. longae 2 mm. crassae, pedunculo 10 mm. longo flavido-pubescente; bracteae rotundo-subpeltatae ciliatae; baccae cum rhachi elongatae; stigmata 3 minuta sessilia.

Loreto: Iquitos, 100 meters, *Killip & Smith 26938* (type in U. S. Nat. Herb.).

Piper Claudii C. DC. Ann. Cons. & Jard. Genève 2: 264. 1898.

A shrub, the branches and the nerves beneath somewhat crisp-pubescent; leaves lanceolate, acute at both ends, 10–12 cm. long, 2.5–3 cm. wide, pinnately nerved from the lower half, the nerves about 5×2; petiole 5 mm. long; spikes 5 (becoming 10) mm. thick, 15–25 mm. long; bracts spatulate; ovary with a style.

Type from Peru, *Gay* in 1839–1840 in herb. Paris.

Piper coactaepilum Trelease, sp. nov.

Fruticulus nervis subtus breviter tomentosis exceptis glaber nodosus, internodiis floriferis modice brevibus et gracilibus nigrescentibus; folia ovata subacuminata basi angustata cordulata 13 cm. longa 6 cm. lata e dimidio inferiore submultiplinervia, nervis 5×2, in sicco tenuia lucida, petiolo 15 mm. longo infra medium vaginante; spicae 110 mm. longae 3 mm. crassae acutatae, pedunculo 10–15 mm. longo; bracteae rotundo- vel triangulari-subpeltatae ciliatae; stigmata minuta sessilia.

Junín: Puerto Yessup, 400 meters, *Killip & Smith 26310* (type in U. S. Nat. Herb.).

Piper cocherense Trelease, sp. nov. *P. Carpunya* Auct. ex parte. *Ottonia Lessertiana* Miq. Syst. 546. 1844; Ill. Piper. *pl. 92. P. Lessertianum* C. DC. in DC. Prodr. 16, pt. 1: 258. 1869, non C. DC. Journ. Bot. 4: 164. 1866.

Frutex glaber ramulis gracilibus; folia ovata subacuta basi obtusa vel impresso-subcordata 13–15 cm. longa 7 cm. lata e dimidio inferiore submultiplinervia, nervis circa 5×2, in sicco viridia coriacea revoluta, petiolo brevi; spicae 100 mm. longae 2 mm. crassae, pedunculo 10 mm. longo; bracteae cucullatae; baccae late obovoideae breviter mucronatae; stigmata sessilia.

Huánuco: Cochero, *Poeppig D1354* (type in herb. Vienna).

Piper comasense Trelease, sp. nov.

Frutex compactus nodosus glaber vel fugaciter puberulus, internodiis floriferis brevibus crassis; folia lanceolato-elliptica utrinque subacuta 7 cm. longa 3 cm. lata e dimidio inferiore pinnatinervia, paribus 2 nervorum subbasilaribus, in sicco firma fragilia saepe plicata, petiolo vix 3 mm. longo exalato; spicae 70 mm. longae 4 mm. crassae leviter curvae, pedunculo crassiusculo 10 mm. longo; bracteae crescentico-subpeltatae; baccae rotundatae vel ellipsoideae, stigmatibus 3 parvis sessilibus.

Junín: Río de Comas, 2,500–2,600 meters, *Weberbauer 6615* (herb. Field Mus. No. 628,196, type).

Piper conditum Trelease, sp. nov.

Frutex glaber nodosus 1–2-metralis, ramis floriferis gracilibus breviusculis; folia elliptico-subovata acute acuminata basi inaequilateralia latere longiore acuto, breviore subtruncato, 14 cm. longa 6–7 cm. lata e dimidio inferiore pinnatinervia, nervis 5+4, in sicco tenuia subtus minute nigro-glandulosa, petiolo 7+3 mm. longo evaginante; spicae juveniles 35 mm. longae 2 mm. crassae obtusae; pedunculo 10 mm. longo; bracteae rotundo-triangulari-subpeltatae ciliatae.

Loreto: Yurimaguas, 135 meters, *Killip & Smith 28208* (type in U. S. Nat. Herb.). Yurimaguas to Balsapuerto, *Killip & Smith 28090, 28370.*

Piper conditum var. **angustum** Trelease, var. nov.

Folia lanceolato-oblonga vel elliptico-oblonga 13–16 cm. longa 5–6 cm. lata in sicco firmiora; spicae juveniles vix 10 mm. longae et 1 mm. crassae.

Loreto: Yurimaguas, *Killip & Smith 29105* (type in U. S. Nat. Herb.).

Piper confusionis Trelease. sp. nov.

Arbor 3–4-metralis, ramulis dense rubro-villosis; folia obovata acuminata basi inaequilateralia sinu laterali, lobo majore rotundato petiolum rubro-villosum superante, 33 cm. longa et 20 cm. lata vel ultra, e dimidio inferiore subpinnatinervia, nervis 5×2, nervis supplementariis in auricula conspersis, supra glabra subtus ad nervos dense ferrugineo-villosa, in sicco tenuia, petiolo 4 cm. longo alato; spicae juveniles 55 mm. longae 3 mm. crassae, pedunculo rubro-villoso 2 cm. longo; bracteae rotundo-subpeltatae glabrae.

Loreto: Yurimaguas to Balsapuerto, 135–150 meters, *Killip & Smith 28231* (type in U. S. Nat. Herb.). Mainas, *Poeppig* in 1831.

—Junín: Eneñas, 1,600–1,900 meters, *Killip & Smith 25734*.—Without locality, *Poeppig 25*(?).—Brazil: Seringal São Francisco, *Ule 9293*.

Piper conispicum Trelease, sp. nov.

Arbor humilis glabra, internodiis floriferis subgracilibus brevibus; folia lanceolata vel elliptica acute acuminata basi cordulata, lobo altero majore, 15–18 cm. longa 6–8 cm. lata undique pinnatinervia, nervis 8–10×2, petiolo vix 5 mm. longo latus subacutum longius folii aequante late alato; spicae 11 mm. longae 6 mm. latae initio anthesis late conicae, pedunculo vix 4 mm. longo; ovarium obconicum in stylum gracilem attenuatum; stigmata 3 minuta patentia.

Loreto: Santa Rosa, 135 meters, *Killip & Smith 28767* (type in U. S. Nat. Herb.).

Piper constipatispicum Trelease, sp. nov.

Frutex vel arbor 3–4-metralis, internodiis floriferis graciusculis elongatis interdum fistulosis araneosis; folia ovata acuminata basi plus minusve inaequaliter rotundata vel subretrorsa, margine acute ad petiolum protracto, 19–22 cm. longa 10–13 cm. lata vel usque ad 28 cm. longa atque 15 cm. lata, e dimidio inferiore submultiplinervia, nervis 5×2, in sicco tenuia, subtus pallidiora stellato-tomentosa ad nervos subvillosa, petiolo 15–20+5 mm. longo infra medium vaginante subvilloso; spicae juveniles 4–6 mm. longae 3 mm. crassae, pedunculo conico 6 mm. longo pubescente; bracteae rotundo-subpeltatae hirtellae.

Loreto: San Antonio, 110 meters, *Killip & Smith 29415* (type in U. S. Nat. Herb.), *29442*, *29302*.

Piper constipatispicum var. **lanosum** Trelease, var. nov.

Arbor 4–5-metralis, ramulis, petiolis, pedunculis et pagina inferiore folii stellatim albido-lanosis; spicae juveniles 10 mm. longae 3 mm. crassae acutatae.

Loreto: Iquitos, 110 meters, *Killip & Smith 27467* (type in U. S. Nat. Herb.). Soledad, *Killip & Smith 29802*.

Piper constipatispicum var. **tonsum** Trelease, var. nov.

Frutex 3–4-metralis, ramulis tantum tomentulosis, aliter ut in var. *lanosum*.

Loreto: Soledad, 110 meters, *Killip & Smith 29802* (type in U. S. Nat. Herb.).

Piper contamanum Trelease, sp. nov.

Frutex nodosus 3-metralis nervis folii subtus minute puberulis exceptis glaber, internodiis floriferis brevibus gracilibus pallido-granulosis; folia lanceolato-elliptica subacuminata basi inaequaliter acuta 13–18 cm. longa 4–7 cm. lata e 2 tertiis inferioribus pinnatinervia, nervis 5×2, petiolo 7+3 mm. longo non vaginante; spicae juveniles 30 mm. longae 2 mm. crassae, pedunculo brevi; bracteae parvae albae triangulari-subpeltatae.

Loreto: Contamana on Río Ucayali, 150 meters, *Killip & Smith 26880* (type in U. S. Nat. Herb.).

Piper controversum Steud. Nom. Bot. ed. 2. 2: 340. 1841. *Piper caracasanum* Opiz in Presl, Rel. Haenk. 155. 1830, non *P. caracasanum* Bredem.

A shrub, subtomentose-subvillous except for the glabrescent upper surface of the leaves; leaves broadly ovate, short-acuminate, obliquely cordate with the larger side equaling the petiole, 24–30 cm. long, 14–17 cm. wide, subpinnately nerved from below the upper third, the nerves about 6×2; petiole 4 cm. long, scarcely shorter on one side; inflorescence unknown.

Huánuco: Huánuco, *Haenke*, at Berlin; *Haenke 71*, at Vienna, types.

Piper cordatum C. DC. Journ. Bot. 4: 213. 1866.

A shrub with twigs, leaf margin, and nerves beneath somewhat crisp-puberulent; leaves broadly elliptic, acute, shallowly cordate, 25–28 cm. long, 11–14 cm. wide, pinnately nerved throughout; petiole barely 2 cm. long, dilated at the base, sheathing to the middle; spikes becoming 80 mm. long, 10 mm. thick; peduncle thick, scarcely 10 mm. long; bracts large, brown, subpeltate; berries obovoid, with a style; stigmas short. Neg. 7229.

San Martín: Monte Pingullu, Tarapoto, *Spruce 4847*, type.—Loreto: Cerro de Ponasa, 1,200 meters, *Ule 6828*.

Piper correptum Trelease, sp. nov.

Frutex 3-metralis nodosus, internodiis floriferis brevibus crassiusculis cito glabrescentibus; folia lanceolata longiacuminata basi paullo inaequilateralia, latere breviore minute subcordulato, 13–14 cm. longa 4 cm. lata e dimidio pinnatinervia, nervis circa 6×2, subtus ad nervos adpresso-pubescentia, petiolo 5 mm. longo plus minusve crispo-pubescente; spicae 80 mm. longae 3 mm. crassae,

pedunculo vix 10 mm. longo glabrescente; bracteae parvae rotundo-peltatae ciliolatae; baccae subglobosae, stigmatibus sessilibus.

Junín: Puerto Bermúdez, 375 meters, *Killip & Smith 26524* (type in U. S. Nat. Herb.).

Piper costatum C. DC. Bot. Jahrb. 40: 243. 1908.

A shrub, glabrous except that the leaves are crisp-ciliate and obscurely puberulent on the nerves beneath; twigs costate; leaves narrowly oblanceolate, acute at both ends, 20–28 cm. long, 5–7 cm. wide, pinnately nerved throughout; petiole very short, with the blade decurrent on it; spikes gently curved, 50 mm. long, 5–6 mm. thick; peduncle 10–15 mm. long; berries ovoid, with a slender style; stigmas 3, spreading.

Junín: Chanchamayo valley, *Weberbauer 1857*, type.

Piper crassamentum Trelease, sp. nov.

Frutex 3-metralis nodosus, internodiis floriferis crassis breviusculis crispe ferrugineo-pilosis; folia ovata acute acuminata basi rotundata 23 cm. longa 11 cm. lata e tertio inferiore submultiplinervia, nervis 5×2, subtus ferrugineo-pubescentia, nervis breviter subvillosis, petiolo 15 mm. longo crispe ferrugineo-piloso alato; spicae fructiferae 100–140 mm. longae 10 mm. crassae, pedunculo 10 mm. longo 4 mm. crasso ferrugineo-piloso; bracteae triangulari-subpeltatae; baccae rotundatae, stylo gracili, stigmatibus 3 linearibus.

Junín: Puerto Yessup, 400 meters, *Killip & Smith 26354* (type in U. S. Nat. Herb.).

Piper crocatum R. & P. Fl. 1: 35. *pl. 55.* 1798. *Steffensia crocata* Kunth, Linnaea 13: 652. 1839. *Artanthe crocata* Miq. Syst. 429. 1844.

A yellow-villous-subhirsute shrub; leaves elliptic, acuminate, subacute at the base, 9–12 cm. long, 4–5 cm. wide, pinnately nerved from the lower half, the nerves 4–5×2, bullulate-lacunose, hirsutely scabrid above, villous-hirsute beneath; petiole 10 mm. long; spikes 90–110 mm. long, 5 mm. thick, nearly straight; peduncle 5 mm. long; bracts subtriangular-subpeltate, ciliate; berries subglobose; stigmas 3, rather broad, sessile. Neg. 8408.

Huánuco: Chachahuassi, *Ruiz*, at Berlin, and as *No. 657* in Herb. Willdenow.

Piper cumbasonum C. DC. Verh. Bot. Ver. Brandenb. 47: 108. 1905.

A glabrous, obscurely punctulate shrub, scarcely separable from *P. politum* except for its dull leaves.

Loreto: San Pedro, Río Cumbaso, *Ule 6826*, type.—San Martín: Tarapoto, *Williams 5793*. San Roque, *Williams 7639*. "Cordoncillo."

Piper cupreatum Trelease, sp. nov.

Arbor gracilis 3–4-metralis nervis subtus obscure puberulis exceptis glabra, internodiis superioribus gracilibus nigrescentibus; folia subpentagone elliptico-obovata paullo obtuso-acuminata basi oblique aperte cordata 23–26 cm. longa 12–15 cm. lata e 2 tertiis inferioribus subpinnatinervia, nervis circa 7+8, in sicco tenuia lucida pubescentia, petiolo 30+5 mm. longo alato; spicae juveniles 20 mm. tantum longae 2 mm. crassae, pedunculo contorto duplo breviore; bracteae rotundo-subpeltatae.

Loreto: Balsapuerto, 350–550 meters, *Killip & Smith 28509* (type in U. S. Nat. Herb.). Santa Rosa, *Killip & Smith 28784*. Yurimaguas to Balsapuerto, *Killip & Smith 28274*.

Piper cupreatum var. **longum** Trelease, var. nov.

Arbor gracilis 4–5-metralis; folia elongato-ovata 30 cm. longa 15 cm. lata; petiolo 6+1 cm. longo; spicae juveniles erectae 40 mm. longae 2 mm. crassae, pedunculo duplo breviore.

Loreto: Iquitos, 100 meters, *Killip & Smith 27486* (type in U. S. Nat. Herb.).

Piper curvatum R. & P. Fl. 1: 36. *pl. 54*. 1798. *Artanthe curvata* Miq. Syst. 522. 1844.

An obscure, glabrous, somewhat glandular-punctulate shrub; leaves elliptic-oblong, acute at both ends, 12–13 cm. long, 4 cm. wide, pinnately nerved throughout; petiole 10–15 mm. long; spikes becoming strongly curved and 80 mm. long, 3–4 mm. thick; peduncle 10 mm. long.

Huánuco: Cochero and Chinchao, *Ruiz & Pavón*, type.

Unknown except for the original description and illustration, unless the Peruvian *P. colubrinum*, with obliquely excised leaf base, be the same.

Piper daedalum Trelease, sp. nov.

Frutex humilis plus minusve nodosus, internodiis floriferis gracilibus subelongatis; folia lanceolato-elliptica acuminata basi subinaequilaterali acuta vel in foliis latioribus subobtusa 9–10 cm. longa 4–4.5 cm. lata undique pinnatinervia vel nervis e tertio superiore

obscuris, inferioribus circa 5×2, in sicco subopaca subtus glandulosogranulosa, petiolo 10+3 vel 15 mm. longo exalato; spicae fructiferae 20 mm. longae 5 mm. crassae caduce apicatae, pedunculo filiformi; bracteae triangulari-subpeltatae ferrugineo-ciliatae; baccae globosae, stigmatibus 3 minutis, stylo distincto.

Loreto: Lower Río Huallaga, 155–210 meters, *Llewelyn Williams 3861* (herb. Field Mus., type).

Piper dasyoura (Miq.) C. DC. in DC. Prodr. 16, pt. 1: 269. 1869. *Artanthe dasyoura* Miq. Lond. Journ. Bot. 4: 452. 1866.

A shrub with subretrorsely hirsute-villous twigs; leaves lance-elliptic, subacuminate, acute-based, 16–20 cm. long, 6–8 cm. wide, pinnately nerved throughout, finely rugulose, soft-pubescent; petiole 10 mm. long; spikes 65 mm. long, 5 mm. thick, gently curved; peduncle 10 mm. long, hirtellous; bracts crescentic-subpeltate, ciliate; berries round; stigmas 3, sessile.

Type collected in Peru, *Mathews 1716*.

Piper dasypodum (Miq.) C. DC. in DC. Prodr. 16, pt. 1: 304. 1869. *Artanthe dasypoda* Miq. Lond. Journ. Bot. 4: 458. 1866.

A shrub, fuscous-villous throughout; leaves elliptic-subovate, slender-acuminate, nearly equilaterally cordulate, 14–18 cm. long, 6–8 cm. wide, pinnately nerved from the lower half, the nerves about 5×2; petiole 10 mm. long; young spikes 15 mm. long, 8 mm. thick, subcuspidate; peduncle barely 5 mm. long. Neg. 8407.

Type from Peru, *Mathews 1702*, type.

Piper delatum Trelease, sp. nov.

Frutex nodosus 3–4-metralis, internodiis floriferis gracilibus brevibus evanescente puberulis albido-granulosis; folia anguste lanceolata acute acuminata basi inaequaliter acuta 10 cm. longa 3.5 cm. lata e 2 tertiis inferioribus pinnatinervia, nervis 5–6×2, subtus canescentia, nervis dense adpresso-pubescentibus, inter nervos sparsius pubescentia, petiolo 3+2 mm. longo cinereo-pubescente; spicae 75–85 mm. longae 2–3 mm. crassae, pedunculo vix 5 mm. longo glabrato; bracteae parvae rotundo-subpeltatae ciliolatae; baccae subcylindraceae truncatae; stigmata 3 minuta sessilia.

Loreto: Puerto Arturo, 135 meters, *Killip & Smith 27713* (type in U. S. Nat. Herb.).

Piper demoratum Trelease, sp. nov.

Frutex glaber nodosus, internodiis brevibus graciliusculis; folia ovata vel lanceolato-ovata subacuminata basi aequilateralia, basi

angusta subacuta vel subcordulata, 12–13 cm. longa 6 cm. lata e dimidio inferiore submultiplinervia, nervis 5×2, coriacea, petiolo 10 mm. longo exalato; spicae 60 mm. longae 3 mm. crassae, pedunculo 5 mm. longo; bracteae triangulari-subpeltatae ciliolatae; baccae plus minusve triquetrae; stigmata 3 lata sessilia adpressa.

Junín: Chanchamayo Valley, 1,500 meters, *Carlos Schunke 279* (herb. Field Mus. No. 571,335, type).

Piper dendropse Trelease, sp. nov.

Arbor 3–5-metralis nodosa nervis folii subtus minute crispo-pubescentibus exceptis glabra, internodiis floriferis brevibus graciliusculis; folia lanceolato-elliptica subacuminata basi inaequaliter acuta 12–17 cm. longa 4–6 cm. lata e 2 tertiis inferioribus pinnatinervia, nervis circa 6×2, in sicco tenuia sed firma, petiolo 6+4 mm. longo exalato; spicae 90–100 mm. longae 3 mm. crassae mucronatae, pedunculo vix 5 mm. longo; bracteae triangulari-subpeltatae ciliolatae; baccae depressae rotundatae vel cum rhachi elongatae; stigmata 3 minuta sessilia.

Junín: La Merced, 700 meters, *Killip & Smith 23488* (type in U. S. Nat. Herb.).

Piper Dennisii Trelease, sp. nov.

Frutex 2-metralis multiramosus nodosus, internodiis floriferis brevibus gracillimis evanescente intertexto-sericeis; folia anguste lanceolata attenuato-acuta basi subaequaliter acuta 8 cm. longa 1 cm. lata e tertio inferiore pinnatinervia, nervis 4×2 breviter araneosis, petiolo 4+1 mm. longo paullo pubescente exalato; spicae 40 mm. longae 2 mm. crassae acutatae, pedunculo 5 mm. longo minute cinereo-pubescente; bracteae rotundo-subpeltatae ciliolatae; baccae teretes, stigmatibus sessilibus.

Loreto: Río Marañón Valley, 150 meters, *W. J. Dennis* (*Killip & Smith 29137;* type in U. S. Nat. Herb.).

Piper desultorium Trelease, sp. nov.

Arbor 3–4-metralis, internodiis floriferis brevibus gracilibus incurvo- vel adpresso-hirsutis; folia oblongo-lanceolata acuminata basi plus minusve inaequaliter acuta 11–15 cm. longa 5–7 cm. lata e dimidio inferiore pinnatinervia, nervis 5–6×2, in sicco tenuia caerulescentia, supra lepidoto-asperata sed vix granulosa, subtus ad nervos subadpresso-strigillosa, petiolo 8+2 mm. longo hispido exalato; spicae 70 mm. longae 3–4 mm. crassae caudatae, pedunculo 5–6 mm. longo scabrido-villoso; bracteae rotundo-subpeltatae; baccae teretes, stigmatibus sessilibus.

Junín: Schunke Hacienda, La Merced, 1,400–1,700 meters, *Killip & Smith 24654* (type in U. S. Nat. Herb.). Chanchamayo Valley, 1,500 meters, *Schunke 252* (herb. Field Mus.).

Piper dichotomum R. & P. Fl. 1: 35. *pl. 60.* 1798. *Peltobryon dichotomum* Klotzsch in Miq. Syst. 372. 1844.

A glabrous shrub, but with the young parts minutely papillate; leaves elliptic, acuminate, acute-based, 15 cm. long, 6 cm. wide, pinnately nerved from below about the upper third; petiole 10 mm. long; spikes 30 mm. long, 8–10 mm. thick; peduncle 10 mm. long; bracts subpeltate; berries round, with a style; stigmas 3, short.

Huánuco: Chinchao, Macora, Mesapata, *Ruiz & Pavón*, type.

Piper dimetrale C. DC. Bot. Jahrb. 40: 245. 1908.

A shrub, somewhat soft-hairy when young; leaves lance-ovate, acuminate, slightly inequilaterally rounded at the base, 14 cm. long, 6 cm. wide, pinnately nerved from somewhat more than the lower half, the nerves 5–6×2, becoming rugose, hirsute beneath; petiole 8+2 mm. long, hirsute; spikes 70 mm. long, 2 mm. wide; peduncle 15–20 mm. long.

Puno: Sillacunca, at 1,500 meters, in thicket, *Weberbauer 1281*, type.

Piper dispansum Trelease, sp. nov.

Frutex glaber 2–3-metralis, ramis patentibus plus minusve nodosis et geniculatis, internodiis floriferis subgracilibus brevibus; folia elliptico-oblonga breviter acuminata basi fere aequaliter acuta 15 cm. longa 5–6 cm. lata fere ubique pinnatinervia, nervis circa 6×2, intermediis adjectis, pallido-granulosa, petiolo 1 cm. longo exalato; spicae juveniles vix 6 mm. longae 1 mm. crassae, pedunculo brevissimo.

Junín: Puerto Bermúdez, 375 meters, in thicket, *Killip & Smith 26434* (herb. Field Mus. No. 607,559, type).—Loreto: Yurimaguas, *Killip & Smith 27684, 27612.* Puerto Arturo, *Killip & Smith 27882.*

Piper diversipilum Trelease, sp. nov.

Subarborescens ubique laxe hirtella et longivillosa, internodiis floriferis breviusculis crassiusculis; folia inaequaliter vel subfalcate lanceolato-oblonga sensim longiacuminata, basi inaequaliter obtusa, modice parva 18–20 cm. longa 6–6.5 cm. lata e dimidio inferiore pinnatinervia, nervis circa 6×2, in statu adulto plus minusve grosse bullata vel rugosa, petiolo brevissimo vix 3+3 mm. longo exalato;

spicae oppositifoliae fere rectae 80 mm. longae 3 mm. crassae, pedunculo breviusculo 10–15 mm. longo; bracteae rotundo-subpeltatae ciliatae, floribus sessilibus perfectis; stigmata 3 sessilia brevia; baccae globosae glabrae.

Huánuco: Posuso, 600 meters, *Macbride 4666* (herb. Field Mus. No. 535,740, type).

Piper dulce Trelease, sp. nov.

Frutex glaber plus minusve nodosus 3–4-metralis, internodiis superioribus brevibus gracilibus; folia elliptica anguste acuminata basi fere aequaliter subacuta e dimidio inferiore pinnatinervia, nervis 5–6×2, in sicco tenuia, petiolo 10 mm. longo tantum ad basin vaginante; spicae juveniles 15 mm. tantum longae 2 mm. crassae, pedunculo brevi crasso; bracteae rotundo-subpeltatae.

Junín: La Merced, 700 meters, *Killip & Smith 23705* (type in U. S. Nat. Herb.).

Piper Durvilleanum (Miq.) Trelease, comb. nov. *Artanthe Durvilleana* Miq. Syst. 507. 1844. *P. anonaefolium* var. *rigidulum* C. DC. in DC. Prodr. 16, pt. 1: 299. 1869. *P. colubrinum* Auct. as to Peru.

A glabrous, glandular-granular shrub; leaves elliptic-oblong, short-acuminate, acute-based with one side concavely excised, 15 cm. long, 6 cm. wide, pinnately nerved throughout; petiole 10–20 mm. long; spikes curved, 60 mm. long, 4 mm. thick, pointed; peduncle 15 mm. long; bracts subtriangular-subpeltate; berries round; stigmas sessile.

Huánuco: Cochero, *Poeppig 3113*, type.

Piper ecallosum Trelease, sp. nov.

Frutex glaber; folia ovata acuminata basi subaequaliter obtusa 12 cm. longa 6 cm. lata e dimidio inferiore pinnatinervia, nervis circa 4×2, subcoriacea, subtus granulosa, nervis subimpressis, petiolo 8+2 mm. longo exalato; spicae juveniles 20 mm. longae 5 mm. crassae, pedunculo brevissimo.

Junín: Pangoa, *Mathews 1147* (type in herb. Vienna).

Piper edurum Trelease, sp. nov.

Frutex 2-metralis nodosus glaber, internodiis floriferis brevibus modice gracilibus; folia elliptico-ovata acute subacuminata basi infima subaequaliter acuta 14 cm. longa 6–7 cm. lata e dimidio inferiore submultiplinervia, nervis 4–5×2, in sicco crassa dura,

petiolo 10–15 mm. longo exalato; spicae 35–50 mm. longae 3–4 mm. crassae, pedunculo 5 mm. longo; bracteae crescenticae; baccae rotundae in sicco conico-subtruncatae, stigmatibus 3 sessilibus.

Ayacucho: Aina, 750–1,000 meters, *Killip & Smith 22618* (type in U. S. Nat. Herb.), *22566*.—Junín: Huacapistana, *Killip & Smith 24325*.

Piper elongatifolium Trelease, sp. nov. *P. angustifolium* Auct. ex parte. *P. elongatum* Auct.

Frutex nodosus, internodiis floriferis brevibus crassiusculis transiente hirtellis dense pallido-granulosis; folia lanceolato-oblonga vel elliptico-oblonga acuminata basi breviter cordulata 13–19 cm. longa 4–6.5 cm. lata e dimidio inferiore pinnatinervia, nervis 5–6×2, supra lepidota, subtus microscopice granuloso-punctulata nervis subadpresso-hirsutis glabrescentibus, petiolo 5 mm. longo subhispido exalato; spicae oppositifoliae valde curvae 120 mm. longae 3 mm. crassae, pedunculo 10 mm. longo plus minusve hirtello; bracteae rotundae vel triangulari-subpeltatae ciliolatae, floribus sessilibus perfectis; baccae minutae obconicae, stigmatibus 3 minutis sessilibus.

Junín: La Merced, sunny slopes, 600 meters, *Macbride 5287* (herb. Field Mus. No. 536,312, type). Río Perené, *Killip & Smith 25113, 25124*.

Piper elongatum Vahl, Enum. 1: 312. 1805. *P. angustifolium* R. & P. Fl. 1: 38. *pl. 57*. 1798; Kramer, Soc. Appl. Pharmacog. 189. *f. 65;* Mansfield in Squibbs Atlas, 368. *f;* non *P. angustifolium* Lam. 1791. *P. purpurascens* D. Dietr. Syn. Pl. 1: 119. 1839. *Steffensia elongata* Kunth, Linnaea 13: 637. 1839; Gaudichaud, Voy. Bonite *pl. 95*. *Artanthe elongata* Miq. Syst. 434. 1844.

A resinous-aromatic shrub about 2 meters tall, very nodose; flowering internodes short and moderately stout, sparsely hamate-hirsute, glabrescent and somewhat pale-granular in age; leaves lance-oblong, long-attenuate rather than acuminate, slightly unequally cordulate at the base with the sinus sometimes closed by overlapping of the shorter lobe, 15–22 cm. long, 3.5–5 cm. wide, pinnately nerved from the lower half or two-thirds, the nerves 8–9×2, very bullulate, scabrous above, densely upcurved-hirsute on the nerves and veins beneath; petiole very short, 5–6 mm. long, upcurved-hirsute, not winged; spikes strongly curved, 100 mm. long, 3 mm. thick, or larger; peduncle slender, 10 mm. long, sparsely hirtellous; bracts conspicuous, round- or triangular-subpeltate, the

tawny margin rusty-ciliate; stigmas 3, sessile; berries small, obconic. Neg. 8400 (*P. angustifolium*).

Huánuco: Huánuco, *Ruiz 122, 401; Macbride 3498.*—Cuzco; Machupicchu, 2,000–2,400 meters, *Herrera 3191.* Also in Bolivia. "Matico."

The narrow-leaved "matico" of pharmacy, from the eastern slope of Peru and Bolivia. The confusion attending its scientific name is discussed in Bull. Torrey Bot. Club 56: 535.

Piper elongatum var. **Mocco-mocco** Trelease, var. nov.

Frutex nodosus, internodiis brevibus caduce molliter pallido-villosis; folia conspicue bullulata supra glabra; spicae juvenes 40 mm. longae 3 mm. crassae rectae, apice sterili curvato, pedunculo 5 mm. longo velutino.

Cuzco: Santa Ana Valley, Santa Rita, 2,300 meters, *Herrera 1551,* type. "Mocco-mocco."

Piper elongatum var. **pampayacusum** Trelease, var. nov.

Frutex nodosus, internodiis breviusculis; folia scabrido-bullulata subtus molliter subadpresso-pilosa; spicae curvae vel serius fere rectae 60 mm. longae 3 mm. crassae apice gracili sterili, pedunculo 5 mm. longo sparse velutino.

Huánuco: Pampayacu, at mouth of Río Chinchao, 1,100 meters, *Macbride 5047* (herb. Field Mus., type).

Piper elongatum var. **salviaefolium** (Miq.) Trelease, comb. nov. *Artanthe salviaefolia* Miq. Syst. 430. 1844. *P. salviaefolium* C. DC. in DC. Prodr. 16, pt. 1: 270. 1869.

A "matico" shrub with the general characters of the type but with broadly lanceolate leaves 10–15 cm. long and 2–5 cm. wide.

Huánuco: Huánuco, *Dombey 934, 71; Gilg 39; Haenke* in 1790; *Kanehira 101.*—Without locality: *Pavón* at Paris; *Mathews 66, 794.*

Piper Endlicherianum (Miq.) Trelease, comb. nov. *Artanthe Endlicheriana* Miq. Lond. Journ. Bot. 4: 441. 1866.

A glabrous shrub with pale-granular axes; leaves ovate, acuminate, shallow-cordate, 20 cm. long, 10 cm. wide, pinnately nerved from the lower third, the nerves about 5×2; petiole 15 mm. long, narrow, winged; spikes 110 mm. long, 3 mm. thick; peduncle 10 mm. long.

Huánuco: Casapí, *Mathews 1698* (corrected from *305*), type.

Very likely a glabrous form of *P. formosum*, to which de Candolle reduced it.

Piper enenyasense Trelease, sp. nov.

Frutex 2–3-metralis, internodiis floriferis brevibus gracilibus dense albido-villosis; folia lanceolata acuminata basi interdum inaequilaterali obtusa 9–15 cm. longa 3–5 cm. lata supra basibus pilorum mollium fugacium minute granulosa, subtus pallidiora nervis venisque pallido-villosis, petiolo 5 mm. vel 3+2 mm. longo villoso; spicae juveniles 10 mm. longae 2 mm. crassae, pedunculo pallido-villoso fere aequilongo.

Junín: Eneñas, Pichis Trail, 1,600–1,900 meters, *Killip & Smith 25646* (type in U. S. Nat. Herb.).

Piper epunctatum Trelease, sp. nov.

Frutex glaber 2-metralis in sicco nigrescens, internodiis floriferis longis gracilibus; folia lanceolata ad elliptico-subovata anguste acuminata basi paullo inaequilaterali acuta vel in foliis majoribus aequilaterali-obtusa 15 cm. longa 4.5–6.5 cm. lata ubique pinnatinervia, nervis circa 10×2, in sicco tenuia lucida, petiolo 5–20 mm. longo tenuiter alato; spicae juveniles 4 mm. tantum longae et 3 mm. latae cuspidatae, pedunculo aequilongo; bracteae rotundo-subpeltatae pubescenti-marginatae.

Loreto: Mishuyacu near Iquitos, 100 meters, in forest, *G. Klug 1271* (herb. Field Mus. No. 627,689, type).

Piper escaleranum C. DC. Verh. Bot. Ver. Brandenb. 47: 115. 1905.

A shrub with the young parts and the nerves beneath thinly villous-hirsute; leaves lanceolate, acute, inequilaterally cordate with the longer side covering the petiole, 20–21 cm. long, 6.5–8 cm. wide, subpinnately nerved from the lower half, the nerves about 5+6; petiole short, winged; young spikes 15–20 mm. long, 2 mm. thick, pointed; peduncle filiform, 20–30 mm. long.

Loreto: Cerro de Escalera, 1,200 meters, *Ule 6818* (type), *6827*.

Piper euryphyllum Trelease, sp. nov.

Arbor 3-metralis nervis folii subtus minute adpresso-pubescentibus exceptis glabra, internodiis floriferis comparate brevibus et crassis; folia rotundato-ovata breviter acuminata basi truncato-cordata, uno latere paullo breviore, 28 cm. longa 18–20 cm. lata e dimidio inferiore pinnatinervia, nervis 7–8×2, in sicco crasso-papy-

racea viridescentia, petiolo 20+5 mm. longo basin versus vaginante ut costa transiente pubescente; spicae 150 mm. longae 5 mm. crassae, pedunculo 15 mm. longo; bracteae crescenticae inconspicuae; baccae pallide brunneae depressae cum rhachi paullo elongatae, stigmatibus sessilibus.

Junín: East of Quimirí Bridge, near La Merced, 800–1,300 meters, *Killip & Smith 29891* (type in U. S. Nat. Herb.).

Piper excavatum R. & P. Fl. 1: 34. *pl. 54.* 1798. *Artanthe excavata* Miq. Syst. 534. 1844.

A glabrous shrub, the twigs fistulous; leaves elliptic or subovate-elliptic, acuminate, subacute at the base, 11–15 cm. long, 4.5–7 cm. wide, pinnately nerved from the lower half, the nerves about 5×2; petiole 10 mm. long; spikes about 70 mm. long, 4 mm. thick, straight, blunt.

Huánuco: Forests of Cochero, *Ruiz & Pavón*, type. An obscure species.

Piper excessum Trelease, sp. nov.

Frutex glaber; folia subovato-elliptica acuminata basi obliqua, uno latere cuneatim ad petiolum decurrente, 17 cm. longa 8 cm. lata undique pinnatinervia, nervis 8–10×2, petiolo 5+10 mm. longo alato; spicae 80–110 mm. longae 3 mm. crassae, pedunculo 10 mm. longo; bracteae triangulari-subpeltatae ciliatae; baccae cum rhachi elongatae depressae; stigmata 3 parva sessilia.

San Martín: Tocache, Huallaga, *Poeppig addenda 154* in 1830 (type in herb. Vienna).

Piper excultum Trelease, sp. nov.

Frutex nodosus margine petioli paullo puberulo excepto glaber, internodiis floriferis gracilibus breviusculis; folia elliptico-ovata acuminata basi inaequilateralia, latere longiore subacuto, 10–12 cm. longa 3.5–6 cm. lata e dimidio inferiore pinnatinervia, nervis circa 7×2 supra impressis subtus elevatis, in sicco firma lucida non granulosa, petiolo vix 8+2 mm. longo exalato; spicae modice curvae 100 mm. longae 2 mm. crassae, pedunculo 5–10 mm. longo; bracteae parvae rotundo-subpeltatae ciliolatae.

San Martín: San Roque, 1,350–1,500 meters, *Llewelyn Williams 7461* (herb. Field Mus. No. 623,031, type).

Piper expolitum Trelease, sp. nov.

Frutex 3-metralis nodosus glaber, internodiis floriferis breviusculis crassis fistulosis; folia elliptica vel subovata vel oblonga abrupte

breviacuminata basi plus minusve inaequilaterali acuta 12–14 cm. longa 5–6 cm. lata e 2 tertiis inferioribus pinnatinervia, nervis circa 5×2, in sicco tenuia flavido-lucida, petiolo circa 10+3 mm. longo exalato; spicae plus minusve arcuatae 50 mm. longae 4 mm. crassae cuspidatae, pedunculo 10 mm. longo; bracteae rotundo-subpeltatae, margine lato firmo.

Loreto: Iquitos, *Llewelyn Williams 3590* (herb. Field Mus. No. 618,287, type); *Killip & Smith 26897, 27228.* Pebas, in forest, *Williams 1944.* "Cordoncillo."

Piper faecatum Trelease, sp. nov.

Frutex glaber, internodiis floriferis subgracilibus brevibus; folia elliptico-suboblonga acuminata basi rotundata, latere majore interdum subacuto, 23–26 cm. longa 8–10 cm. lata undique pinnatinervia, nervis circa 12×2, obscure glanduloso-granulosa, petiolo vix 5 mm. longo exalato; spicae juveniles 35–40 mm. longae 4–5 mm. crassae acutatae, pedunculo 10 mm. longo; bracteae transversae subpeltatae.

Loreto: Pebas on the Amazon River, *Llewelyn Williams 1593* (herb. Field Mus. No. 613,181, type). "Cordoncillo."

Piper factum Trelease, sp. nov.

Frutex gracilis glaber 2-metralis, internodiis floriferis primo brevibus serius longis gracilibus; folia elliptica longiacuminata basi inaequaliter acuta 10–12 cm. longa 5–6 cm. lata e dimidio inferiore pinnatinervia, nervis 4+5, in sicco tenuia viridia subtus concolori-granulosa, petiolo 8 mm. vel 10+3 mm. longo non vaginante; spicae juveniles 8 mm. longae 1 mm. crassae acutae; bracteae rotundo-subpeltatae.

Loreto: Yurimaguas, 135 meters, *Killip & Smith 27588* (type in U. S. Nat. Herb.).

Piper fagifolium Trelease, sp. nov.

Frutex essentialiter glaber plus minusve nodosus; folia lanceolata acute acuminata basi inaequilaterali acuta 17–20 cm. longa 6–7.5 cm. lata undique pinnatinervia, nervis prominentibus glabratis circa 16×2, subtus dense glanduloso-granulosa, petiolo 10+3 mm. longo exalato; spicae 80 mm. longae 3 mm. crassae, pedunculo gracili 10 mm. longo; bracteae rotundo-subpeltatae glabrae; baccae subteretes vulgo apice depressae; stigmata 3 rotundata sessilia.

Loreto: Santa Rosa, in pasture, 155–210 meters, *Llewelyn Williams 4782* (herb. Field Mus. No. 629,670, type); *Killip & Smith 28743.*

Piper ferruginispicum Trelease, sp. nov.

Frutex metralis nervis folii subtus obscure minute crispo-pubescentibus exceptis glaber, internodiis floriferis modice crassis ut videtur elongatis; folia obovato-elliptica obtusa basi inaequilateraliter cordata, sinu basilari, auricula maxima rotundata petiolo longiore, 32 cm. longa 18 cm. lata e dimidio inferiore subpinnatinervia, nervis circa 6×2, nervis supplementariis in auricula dispositis, in sicco tenuia, petiolo 5 cm. longo alato; spicae rubro-brunneae 100 mm. longae 4 mm. crassae, pedunculo 40 mm. longo; bracteae subcrescenticae.

Loreto: Mishuyacu near Iquitos, 100 meters, in forest, *G. Klug 1421* (herb. Field Mus. No. 627,683, type).

Piper formosum (Miq.) C. DC. in DC. Prodr. 16, pt. 1: 286. 1869. *Artanthe formosa* Miq. Syst. 386. 1844; Ill. Piper. *pl. 69.*

A shrub, somewhat tomentulose-velvety except for the glabrous upper surface of the leaves, these ovate, acuminate, cordate, 13–15 cm. wide, 27 cm. long, submultiple-nerved from the lower half, the nerves 6–7×2; petiole 3 cm. long, winged; young spikes 40 mm. long, 2–3 mm. thick, on a short peduncle.

Huánuco: Casapí, *Mathews 1697*, type.—Junín: Chanchamayo Valley, 1,200–1,800 meters, *Schunke 93, 284, 286, 299, 411, 488.* Above San Ramón, *Killip & Smith 24628.* La Merced, *Killip & Smith 23784.* Huacapistana, *Killip & Smith 29187.* Yapas, *Killip & Smith 25450.*

Piper fortalezanum Trelease, sp. nov.

Frutex glaber, internodiis floriferis modice gracilibus atque elongatis; folia elliptica sensim subacuminata basi fere aequilateraliter acuta vel uno latere breviora, 17–20 cm. longa 6.5–7.5 cm. lata undique pinnatinervia, nervis circa 8–10×2, in sicco tenuia non lepidota, petiolo 10 mm. vel 5+5 mm. longo alato; spicae 80 mm. longae 3 mm. crassae, pedunculo 10 mm. longo; bracteae rotundo-subpeltatae ciliatae; baccae depresso-ellipsoideae, stigmatibus 3 parvis sessilibus.

Loreto: Fortaleza, in forest, 155–210 meters, *Llewelyn Williams 4351* (herb. Field Mus. No. 629,586, type). Puerto Yessup, *Killip & Smith 26281.*

Piper franciscanum Trelease, sp. nov.

Frutex petiolo et nervis folii subtus crispo-puberulis exceptis glaber; folia rotundato-ovata subacuminata basi truncato-cordulata

17 cm. longa 11 cm. lata e dimidio inferiore vel paullo altius submultiplinervia, nervis 5×2, petiolo 2 cm. longo, alis latis fragilibus.

Brazil: Seringal São Francisco, Rio Acre, *Ule 9278* (type), *9283*. Probably also in adjacent Peru.

Piper fulvescenticaule Trelease, sp. nov.

Frutex 2–3-metralis nodosus, internodiis superioribus brevibus gracilibus griseo-velutinis serius rubescentibus; folia oblanceolata caudata, basi angustata rotundata vel cordulata, uno latere breviore, 11–16 cm. longa 4–6 cm. lata e dimidio inferiore pinnatinervia, nervis circa 6×2, subtus adpresso-pubescentia, petiolo vix 2+2 mm. longo; spicae 60 mm. longae 2 mm. crassae apicatae; bracteae rotundo-subpeltatae.

Loreto: Balsapuerto, 150–350 meters, *Killip & Smith 28574* (type in U. S. Nat. Herb.).

Piper fuscispicum Trelease, sp. nov.

Frutex 1.5 m. altus, internodiis floriferis modice gracilibus breviusculis crispo-pubescentibus vel tomentulosis; folia lanceolata acuminata basi acuta uno latere vulgo breviore, 19–22 cm. longa 7–8 cm. lata e dimidio inferiore pinnatinervia, nervis circa 6×2, subtus plus minusve crispo-pubescentia in statu adulto rugosa; petiolo 15+3 mm. vel 18 mm. longo tomentuloso; spicae 90 mm. longae 3–4 mm. latae obtusae, primo brunneo-rubrae serius brunneae, pedunculo 5 mm. longo glabrato; bracteae rotundo-subpeltatae.

Loreto: Pongo de Manseriche, 280 meters, *Ynes Mexia 6352a* (type in herb. Univ. Calif.).

Piper gilvescens Trelease, sp. nov.

Frutex 2-metralis glaber glanduloso-granulosus, internodiis floriferis brevibus gracilibus; folia lanceolato-elliptica vel ovato-elliptica anguste falcato-acuminata, basi subaequilateraliter acuta et ad petiolum decurrentia, 14–16 cm. longa 6–7 cm. lata e 2 tertiis inferioribus pinnatinervia, nervis circa 5×2, in sicco tenuia viridia, petiolo 10 mm. longo; spicae erectae 75 mm. longae 3 mm. crassae mucronatae in sicco rubescentes, pedunculo 8 mm. longo; bracteae rotundo-subpeltatae parvae.

Junín: Cahuapanas, 340 meters, *Killip & Smith 26784* (type in U. S. Nat. Herb.).

Piper gilvibaccum Trelease, sp. nov.

Frutex glaber, internodiis floriferis subgracilibus brevibus; folia lanceolata subfalcato-acuminata basi acuta 8–13 cm. longa 3–4 cm. lata ubique pinnatinervia, nervis profunde impressis circa 8×2, in sicco firma sublucida, petiolo 5 mm. longo late alato; spicae 20–35 mm. longae 5 mm. crassae, pedunculo 3 mm. longo; baccae depresso-globosae rubrae; stigmata 3 parva sessilia.

Loreto: La Victoria on the Amazon River, in forest, *Llewelyn Williams 2754* (herb. Field Mus. No. 616,894, type).

Piper glaberrimicaule Trelease, sp. nov.

Frutex nodosus 3–4-metralis, internodiis floriferis brevibus gracilibus glabris in statu adulto copiose pallido-granulosis; folia lanceolata interdum falcata acute acuminata basi inaequilateralia saltem uno latere rotundata, 12–14 cm. longa 4–5 cm. lata e dimidio inferiore pinnatinervia, nervis circa 5×2, in sicco tenuia viridia subrugosa supra scabrida, subtus ad nervos incurvo-pubescentia, petiolo circa 3+3 mm. longo non vaginante; spicae U-formes 80 mm. longae 3 mm. crassae obtusae, pedunculo 5 mm. longo glabro; bracteae rotundo-subpeltatae.

Ayacucho: Estrella, 500 meters, *Killip & Smith 22624* (type in U. S. Nat. Herb.).

Piper glabribaccum Trelease, sp. nov.

Frutex 3-metralis, internodiis floriferis modice brevibus et gracilibus fulvo-villosis pallido-granulosis; folia ovata sensim acuminata basi breviter cordata majuscula 20–33 cm. longa 11–13 cm. lata e dimidio inferiore submultiplinervia, nervis circa 5×2, subtus ad nervos et supra transiente versus basin araneoso-villosa, petiolo 1 cm. longo fulvo-villoso alato; spicae oppositifoliae 110 mm. longae 7 mm. crassae, pedunculo 1 cm. longo brunneo-villoso; bracteae rotundo-subpeltatae villosae, floribus sessilibus perfectis; ovarium glabrum obovoideum in stylum aequilongum angustatum; stigmata 3 patentia.

Junín: La Merced, 600 meters, edge of forest, *Macbride 5335* (herb. Field Mus. No. 536,362, type).

Piper glabrius (Miq.) Trelease, sp. nov. *Artanthe Poeppigii* var. *glabrior* Miq. in herb. Kew.

Ramuli laxe longe velutino-pilosi pallido-granulosi; folia elliptica vel ovata acuminata basi fere aequilateraliter obtusa 14–17 cm. longa 6–8 cm. lata e dimidio inferiore pinnatinervia, nervis 5×2,

supra granuloso-scabra, subtus ad nervos molliter patenti-pilosa, petiolo 10–15 mm. longo; spicae 100 mm. longae 2–3 mm. crassae, pedunculo 10 mm. longo.

Type from Peru, *Mathews 1705* (type in herb. Kew.).

Piper gracile R. & P. Fl. 1: 35. *pl. 59.* 1798. *Artanthe gracilis* Miq. Syst. 448. 1844.

A slender, hirsute shrub; leaves lanceolate, acuminate, acute at the base, 8–10 cm. long, 3–4 cm. wide, pinnately nerved from below the upper third, rugose, becoming scabrous above from the bases of fallen hairs; petiole 10 mm. long; spikes 40–60 mm. long, 3–4 mm. thick; peduncle 10 mm. long; bracts triangular-subpeltate; berries round; stigmas 3, linear, sessile.

Huánuco: Chinchao, *Ruiz & Pavón*, type.—Amazonas: Chachapoyas, *Mathews 1695* (sometimes labeled as from San Carlos and Casapí).

Piper granulosum R. & P. Fl. 1: 38. *pl. 64.* 1798. *Artanthe granulosa* Miq. Syst. 435. 1844.

A shrub; twigs very transiently puberulous or glabrous, pale-granular; leaves lance-oblong, more or less acuminate, the relatively broad base cordulate and slightly shorter on one side, 10–15 cm. long, 3–4 cm. wide, rugose, granular-scabrous above, slightly punctulate beneath, with upcurved-pubescent nerves; petiole barely 3+2 mm. long; spikes curved, 75 mm. long, 3 mm. thick; peduncle 10 mm. long, glabrous; bracts subpeltate, orange-bordered; berries terete, or angular by pressure; stigmas sessile.

Huánuco: Pillao, *Ruiz & Pavón*, type.—Junín: La Merced, *Killip & Smith 23376, 23377, 23681.*—San Martín, Tarapoto, edge of river, *Williams 5416.* "Cordoncillo."

Piper granuligerum Trelease, sp. nov.

Frutex nodosus, internodiis floriferis gracilibus breviusculis in sicco purpurascentibus sparse transiente molliter pilosis plus minusve lepidoto-punctatis; folia elliptico-lanceolata sensim anguste acuminata basi subinaequilaterali subacuta 18–20 cm. longa 7 cm. lata e dimidio inferiore pinnatinervia, nervis circa 7×2, transiente molliter pubescentia serius minute lepidoto-granulosa ciliata, nervis subtus sparse subvillosis, petiolo 10 mm. longo ciliato; spicae curvae vel fere rectae 130 mm. longae 3–4 mm. latae obtusae, pedunculo vix 10 mm. longo glabrato; bracteae rotundo- vel triangulari-subpeltatae ciliatae.

Loreto: San Antonio, Alto Río Itaya, 145 meters, *Llewelyn Williams 3459* (herb. Field Mus. No. 622,875, type). "Cordoncillo."

Piper gratum Trelease, sp. nov.

Frutex 1-metralis, internodiis floriferis modice brevibus gracilibus plus minusve sparse rigido-villosis; folia lanceolata vel lanceolato-elliptica acuminata basi subinaequilaterali rotundata vel cordulata 12–14 cm. longa 4–6 cm. lata undique vel in foliis latissimis tantum e dimidio inferiore pinnatinervia, nervis 5–6×2, subtus praesertim ad nervos laxe rigido-villosa, petiolo 10 mm. longo piloso alato; spicae 15 mm. longae 3 mm. crassae, pedunculo refracto 5 mm. longo glabrato; bracteae subcucullatae; ovarium mucronatum, stigmatibus ad mucronem insertis.

Loreto: Soledad, 110 meters, *Killip & Smith 29785* (type in U. S. Nat. Herb.).

Piper gratum var. **ingratum** Trelease, var. nov.

Folia anguste lanceolata ad subelliptica 12–14 cm. longa 4–5 cm. lata; spicae pendulae in statu florifero 15–20 mm. longae 2 mm. crassae; ovaria conica ut in speciebus subgeneris *Enckea* protrusa.

Loreto: Mishuyacu near Iquitos, 100 meters, *G. Klug 206* (type in U. S. Nat. Herb.).

Piper griseocaule Trelease, sp. nov.

Frutex gracilis 1.5 m. altus nodosus, ramis viridibus laevibus dense microscopice adpresse griseo-puberulis; folia oblonga subcaudata basi paullo inaequaliter obtusa mediocria 15–17 cm. longa 4.5–5.5 cm. lata e tertio vel dimidio inferiore pinnatinervia, nervis circa 4×2, lucida subtus ad nervos plus minusve pubescentia, petiolo brevi 5+2 mm. longo microscopice adpresso-puberulo basi alato; spicae oppositifoliae fere rectae 70–90 mm. longae 3 mm. crassae, pedunculo 4–5 mm. longo obscure canescente; bracteae rotundo-subpeltatae ciliolatae, floribus sessilibus perfectis; stigmata 3 minuta sessilia; baccae parvae breviter cylindraceae apice concavae.

Junín: La Merced, 1,200 meters, forested slope, *Macbride 5723* (herb. Field Mus. No. 536,755, type), *5595*.

Piper griseovenosum Trelease, sp. nov.

Arbor 4–5-metralis, ramulis crispe brunneo-villosis; folia obovata obtusa basi inaequilateralia, latere longiore auriculate producto et sinum lateralem claudente petiolo villoso longiore, 32 cm. longa

18 cm. lata e dimidio inferiore subpinnatinervia, nervis circa 5×2, in sicco tenuia, supra glabra, costa et nervorum basibus subtus villosis, nervis superne ut venis griseo-puberulis, petiolo 8 cm. longo alato; spicae juveniles 60 mm. longae 3 mm. crassae; bracteae rotundo-subpeltatae glabrae.

Loreto: Puerto Arturo, 135 meters, *Killip & Smith 27803* (type in U. S. Nat. Herb.). Santa Rosa, *Killip & Smith 28915*.

Piper griseum C. DC. in DC. Prodr. 16, pt. 1: 281. 1869.

A gray-pubescent shrub; twigs reflexed-appressed-pubescent; leaves somewhat inequilaterally lanceolate, acuminate, subcordulate at the narrowed base, 11–12 cm. long, 4–4.5 cm. wide, pinnately nerved from below the upper third, the nerves 5×2, appressed-canescent on both sides; petiole scarcely 5 mm. long; spikes curved, 70 mm. long, 2 mm. thick; peduncle 15–20 mm. long, subhispid; bracts round-subpeltate, ciliolate.

Huánuco: Cochero, *Poeppig 1737, D1737*, type.

Piper heptandrum (Miq.) C. DC. in DC. Prodr. 16, pt. 1: 244. 1869. *Enckea heptandra* Miq. Syst. 350. 1844; Ill. Piper. *pl. 64*.

A glabrous shrub; leaves elliptic-suboblong, acuminate, acute-based, 20 cm. long, 9 cm. wide, 5- or obscurely 7-nerved; petiole 2 cm. long; spikes 50–80 mm. long, 3 mm. thick; peduncle 10–15 mm. long; bracts spatulate; stamens (abnormally?) 7 instead of 6; ovary ovoid; stigmas 3, sessile. Neg. 8415.

Type from mountains of Peru, *Ruiz*. Without locality, *Ruiz & Pavón 10–20, 10–19*.

Piper heptandrum var. **crassispicum** Trelease, var. nov.

Spicae 40–50 mm. longae 5 mm. crassae; baccae subpuberulae.

Type from Peru, *Pavón*.—Loreto: Ucayali River, *Tessmann 3165*.

Piper Herrerae Trelease, sp. nov.

Frutex gracilis glaber, internodiis superioribus gracillimis brevibus; folia elliptica vel lanceolato-elliptica longiacuminata basi acuta 9–10 cm. longa 3–4 cm. lata 3-nervia opaca firmo-papyracea plus minusve venosa, petiolo 5 mm. longo; spicae semimaturae 30 mm. longae 4 mm. crassae, pedunculo 5 mm. longo; ovarium ovoideum, stigmatibus brevibus sessilibus.

Cuzco: Capana, 3,700 meters, January, 1926, *Fortunato L. Herrera* (herb. N. Y. Bot. Gard., type).

Piper heterocarpum Trelease, sp. nov.

Frutex cinereo-villosus 2-metralis nodosus in sicco nigrescens, internodiis floriferis brevibus modice gracilibus; folia lanceolato-elliptica acuminata basi inaequilaterali obtusa, uno latere vel interdum ambobus cordulatis, 15–16 cm. longa 5.5–6 cm. lata e dimidio inferiore pinnatinervia, nervis 4+5, petiolo 5+5 mm. longo; spicae 55 mm. longae 4 mm. crassae, pedunculo filiformi 25 mm. longo; bracteae crescentico-subpeltatae; baccae granulosae rotundatae vel varie polygonae propter pressum submucronato-truncatae, stigmatibus sessilibus.

Loreto: Yurimaguas to Balsapuerto, 135–150 meters, *Killip & Smith 28327* (type in U. S. Nat. Herb.).

Piper heterophyllum R. & P. Fl. 1: 34. *pl. 56*. 1798. *Schilleria heterophylla* Kunth, Linnaea 13: 688. 1839. *Artanthe heterophylla* Miq. Syst. 502. 1844.

A glabrous, glandular-granular shrub; leaves elliptic, obscurely short-acuminate, subacute at the base, 11–16 cm. long, 5.5–9 cm. wide, pinnately nerved throughout; petiole 2 cm. long; spikes curved, 60–75 mm. long (or figured as twice as long), 3 mm. thick; peduncle 10 mm. long; bracts roundish-subpeltate, with pale ciliate border; stigmas sessile. Neg. 8414.

Huánuco: Chacahuassi, Pillao, Chinchao, and Muña, *Ruiz & Pavón*, type.

Piper Hookerianum (Miq.) C. DC. Prodr. 16, pt. 1: 272. 1869. *Artanthe Hookeriana* Miq. Lond. Journ. Bot. 4: 446. 1866.

A glabrous shrub; leaves ovate, acuminate, slightly inequilaterally rounded at the base, 16 cm. long, 10 cm. wide, pinnately nerved from somewhat less than the lower half, the nerves 5–6×2; petiole 20+2 mm. long, winged; spikes 25 mm. long, 5 mm. thick; peduncle 10 mm. long; bracts half-round, subpeltate, ciliolate; berries depressed-globose, with a short thick style; stigmas spreading.

Amazonas: Chachapoyas, *Mathews 3222*, type.

Piper huacachianum Trelease, sp. nov.

Frutex 2.5 m. altus nodosus glaber; folia lanceolata utrinque acute protracta 12–17 cm. longa 3–4.5 cm. lata undique pinnatinervia, nervis circa 12×2, petiolo 10–15 mm. longo gracili exalato; spicae plus minusve curvae in statu fructifero 40–50 mm. longae 5 mm. crassae apicatae, pedunculo 7 mm. longo; bracteae rotundo-subpeltatae; baccae globosae, stigmatibus obscuris sessilibus.

Huánuco: Huacachi near Muña, 1,950 meters, *Macbride 4167* (herb. Field Mus. No. 535,230, type).

Piper huacapistanum Trelease, sp. nov.

Frutex, internodiis floriferis gracilibus breviusculis dense hirtellis; folia ovata acute acuminata basi rotundata sed basi infima acute contracta, 15–16 cm. longa 8–9 cm. lata e dimidio inferiore multiplinervia, nervis 5×2, in sicco tenuia viridia, supra circa basin plus minusve velutina, subtus praesertim ad nervos crispo-velutina, petiolo 15 mm. longo hirtello alato; spicae oppositifoliae, juveniles 40 mm. longae 3 mm. crassae, pedunculo vix 5 mm. longo velutino; bracteae rotundo-subpeltatae ciliolatae.

Junín: Huacapistana, *Stevens 77* (type), *79*.

Piper huallaganum Trelease, sp. nov.

Frutex laxe ramosus metralis plus minusve nodosus, internodiis floriferis gracilibus elongatis granuloso-asperatis et primum adpresso-hispidis; folia elliptico-ovata acuminata basi inaequali rotundata vel cordulata, subparva 10–15 cm. longa 5–7 cm. lata e dimidio inferiore pinnatinervia, nervis circa 5×2, in sicco tenuia opaca, subtus ad nervos adpresso-hispida, petiolo 10+2 mm. longo adpresso-hispido basi alato; spicae oppositifoliae 70–90 mm. longae 3 mm. crassae, pedunculo gracili 15 mm. longo adpresso-hispido; bracteae triangulari-subpeltatae glabrae, floribus sessilibus perfectis; stigmata 3 minuta sessilia.

Huánuco: Huallaga Canyon below Río Santo Domingo, 1,200 meters, dense forest, *Macbride 4235* (herb. Field Mus. No. 535,314, type).

Piper huanucanum Trelease, sp. nov. *P. aequale* Auct.

Frutex(?) glaber vel transiente papilloso-puberulus; folia elliptica acuminata basi acuta 10–20 cm. longa 6–9 cm. lata subpinnatinervia, nervis basilaribus 2–3 paribus, pare altero bene infra medium inserto, pare alterno bene supra medium inserto, petiolo vix 10 mm. longo; spicae juveniles 60 mm. longae 3 mm. crassae, pedunculo 10 mm. longo.

Huánuco: Huánuco mountains, *Haenke* (in herb. Prague, Vienna, and Berlin).

Piper huantanum Trelease, sp. nov.

Arbor 3–5-metralis nodosa nervis folii subtus puberulis exceptis glabra, internodiis floriferis longis gracilibus; folia elliptica vel

elliptico-oblonga acuminata basi inaequilaterali acuta 15–16 cm. longa 6–7 cm. lata e dimidio inferiore pinnatinervia, nervis 5×2, petiolo 10+3–4 mm. longo basi tantum vaginante; spicae 100 mm. longae 4 mm. crassae, pedunculo 5 mm. longo; bracteae rotundo-subpeltatae ciliolatae; baccae cylindraceae, stigmatibus parvis sessilibus.

Ayacucho: Estrella, between Huanta and Río Apurímac, 500 meters, *Killip & Smith 23074* (type in U. S. Nat. Herb.).—Junín: Río Perené, *Killip & Smith 25193*.

Piper huantanum var. **elongatum** Trelease, var. nov.

Magis nodosus, internodiis brevioribus; folia lanceolato-elliptica vel oblonga 20 cm. longa 7 cm. lata, petiolo 10+5 mm. longo primo alato; spicae juveniles 30 mm. longae 2 mm. crassae obtusae flavescenti-albae, pedunculo 10 mm. longo.

Junín: Near Perené Bridge, Río Paucartambo Valley, 700 meters, *Killip & Smith 25304* (type in U. S. Nat. Herb.).

Piper ictum Trelease, sp. nov.

Frutex(?), ramis crispo-subtomentosis; folia rugoso-lacunosa lanceolato-ovata sensim acuta basi acuta 12 cm. longa 4 cm. lata e 2 tertiis inferioribus pinnatinervia, nervis circa 6×2, supra molliter pilosa et scabra, subtus dense flavo-pilosa, petiolo 1 cm. longo; spicae 70 mm. longae 5 mm. crassae obtusae, pedunculo 10 mm. longo hispido; bracteae triangulari-subpeltatae ciliatae; baccae globosae, stigmatibus 3 sessilibus.

Type collected in Peru, without definite locality, *Mathews 1711* or *1712* (herb. Kew.), *1716* (herb. Berol.).

Piper illautum Trelease, sp. nov.

Frutex(?); folia oblanceolata acuta basi cuneata 15 cm. longa 5 cm. lata ubique pinnatinervia tantum supra glabra, petiolo vix 10 mm. longo; spicae curvae 40 mm. longae 5 mm. crassae; baccae subglobosae, stylo brevi; stigmata 3 patentia.

Known only from a fragmentary specimen in Herb. Paris, ascribed to Peru, *Gay 1003*.

Piper immite Trelease, sp. nov.

Frutex 3–5-metralis nodosus, internodiis floriferis brevibus gracilibus glabris vel obscure evanescente puberulis; folia ovata acuminata basi inaequilaterali rotundata et paullo ad petiolum angustata, 12–16 cm. longa 6–10 cm. lata e dimidio inferiore submultiplinervia,

nervis circa 5×2, in sicco firme papyracea, subtus ad nervos inconspicue breviter incurvo-pilosa, inter nervos sparse substellato-pubescentia vel glabrata, petiolo 10–15+2 mm. longo varie vaginante glabrato; spicae 80–140 mm. longae 3 mm. crassae, pedunculo vix 5 mm. longo subpuberulo; bracteae triangulari-subpeltatae; baccae teretes, stylo gracili; stigmata 3 gracilia.

Junín: La Merced, 700 meters, *Killip & Smith 23524* (type in U. S. Nat. Herb.), *23437*, *23466*, *24074*.

Piper immutatum Trelease, sp. nov.

Frutex subfistulosus 3-metralis, internodiis floriferis crassiusculis brevibus dense rubescenti-villosis; folia elliptica plus minusve acuminata basi inaequilaterali obtusa latere longiore omnino ad petiolum adnato, 20 cm. longa 8–10 cm. lata e dimidio inferiore pinnatinervia, nervis 5–6×2, in sicco tenuia brunnescentia, supra sparse molliter pilosa, subtus ad nervos pilis rigidioribus conspersa, petiolo 3 mm. uno latere longo villoso; spicae 80 mm. longae 3–4 mm. crassae, pedunculo 3 mm. longo villoso; bracteae rotundo-subpeltatae ciliolatae.

Loreto: Balsapuerto, 350–550 meters, *Killip & Smith 28536* (type in U. S. Nat. Herb.).

Piper incitum Trelease, sp. nov.

Frutex nodosus glaber 2–3-metralis, internodiis floriferis gracilibus brevibus; folia lanceolata vel elliptica anguste acuminata basi aequilaterali acuta 9–12 cm. longa 3–5 cm. lata e dimidio inferiore pinnatinervia, nervis 3–4×2 infimis prope basin nascentibus, in sicco caerulescenti-viridia, petiolo 5–10 mm. longo exalato; spicae fructiferae 50 mm. longae 5 mm. crassae obtusae, pedunculo gracili 10 mm. longo; bracteae crescenticae; baccae subglobosae truncatae, stigmatibus sessilibus.

Junín: Huacapistana, 1,800 meters, *Killip & Smith 24304* (type in U. S. Nat. Herb.).

Piper incomptum Trelease, sp. nov.

Arbor, internodiis floriferis gracilibus brevibus albido-villosis serius glabrescentibus; folia lanceolata acuminata basi subinaequilaterali acuta 9–11 cm. longa 3–4.5 cm. lata e 2 tertiis inferioribus pinnatinervia, nervis 6×2, supra pilis basi bulbosis asperata, subtus ad nervos albido-villosa; petiolo 3 mm. longo albido-villoso; spicae 55 mm. longae 3 mm. crassae, pedunculo 10 mm. longo scabrido.

Junín: Chanchamayo Valley, 1,200 meters, *Carlos Schunke 1793* (herb. Field Mus. No. 625,555, type).

Piper indecorum Kunth, Linnaea 13: 722. 1839. *Schilleria indecora* Kunth, l.c. *Artanthe polyneura* Miq. Syst. 504. 1844. *P. maynasianum* C. DC. in DC. Prodr. 16, pt. 1: 262. 1869.

A shrub, drying yellowish; internodes rather thick and short, glabrescent; leaves elliptic-lanceolate, acuminate, acute-based, 14–19 cm. long, 6–7 cm. wide, pinnately nerved throughout, subvillous on the nerves beneath; petiole scarcely 10 mm. long, subvillous; spikes 100 mm. long, 4 mm. thick or larger, gently curved; peduncle 10 mm. long, glabrescent; bracts subtriangular-subpeltate; berries short-cylindric, depressed at the top, with a short mucro; stigmas 3, sessile.

Huánuco: Cochero, *Poeppig 2353B, 1463, 143.*—Junín: Pangoa, *Mathews 1144.*

Piper indianonum Trelease, sp. nov.

Frutex 5-metralis, internodiis brevibus subgracilibus glabris granulosis; folia late lanceolata vel lanceolato-elliptica sublonge acuminata basi subacuta, uno latere magis rotundato, 12–15 cm. longa 4–5.5 cm. lata e dimidio inferiore vel paullo altius pinnati-nervia, nervis 5×2, subtus adpresso-pubescentia, petiolo 5 mm. longo; spicae strictae 90–100 mm. longae 2 mm. crassae, pedunculo 10 mm. longo; bracteae rotundo-subpeltatae; baccae depresso-ellipsoideae, stigmatibus 3 sessilibus.

Loreto: Fundo Indiano, 110 meters, *Ynes Mexia 6396* (type in herb. Univ. Calif.), also *No. 6441* with less granular twigs.

Piper indiciflexum Trelease, sp. nov.

Arbor 4–5-metralis, internodiis crassis longis glabris in sicco nigrescentibus; folia rotundo-ovata breviter acuminata basi sub-oblique cordata 26 cm. longa 20 cm. lata e dimidio inferiore submul-tiplinervia, nervis circa 7×2 e latere proximo ramosis, in sicco tenuia, obscure rugulosa, supra sparse molliter brevipubescentia, subtus densius crispo-pubescentia, petiolo 5 cm. longo glabro tantum prope basin vaginante; spicae 60 mm. longae 6 mm. crassae curvae, petiolo 2 cm. longo glabro; bracteae triangulari-subpeltatae; baccae rotun-datae, stigmatibus sessilibus.

Junín: Huacapistana, 1,800–2,400 meters, *Killip & Smith 24507* (type in U. S. Nat. Herb.).

Piper interitum Trelease, sp. nov.

Arbor 3–5-metralis nodosa glabra, internodiis modice gracilibus longis; folia late elliptica acuminata basi inaequilaterali subauricu-lata 17 cm. longa 9–10 cm. lata ubique pinnatinervia, nervis circa

10×2, petiolo circa 15 mm. longo alis latis obscurato; spicae pendulae 25 mm. longae 12 mm. crassae, pedunculo 5 mm. longo; bracteae rotundo- vel triangulari-subpeltatae; baccae globosae submucronatae, stigmatibus 3.

Junín: Santa Rosa, Pichis Trail, 625–900 meters, *Killip & Smith 26150* (type in U. S. Nat. Herb.).

Piper intonsum Trelease, sp. nov.

Frutex 4-metralis, internodiis floriferis breviusculis gracilibus in sicco nigrescentibus persistente densiuscule griseo-velutinis; folia elliptica subabrupte protracto-acuminata submucronatae vulgo basi acuta minora 10–12 cm. longa 5–7 cm. lata palmatim 5–6-nervia, supra prope basin et ad nervos atque subtus ubique minute crispo-pubescentia, petiolo breviusculo 10 mm. longo tantum prope basin alato sordide crispo-pubescente; spicae oppositifoliae modice graciles et elongatae, 60 mm. longae 2–4 mm. crassae, pedunculo vix 10 mm. longo plus minusve crispo-pubescente vel velutino; bracteae concavae glabratae, floribus sessilibus perfectis; stigmata 3 conniventia; baccae ovoideae subattenuatae.

Junín: La Merced, sandy valley floor, 600 meters, *Macbride 5445* (herb. Field Mus. No. 536,479, type).—San Martín: Rumizapa, Tarapoto, 360–900 meters, *Williams 6829*. "Cordoncillo."

Piper iquitosense Trelease, sp. nov.

Frutex nodosus nervis folii subtus velutinis exceptis glaber, internodiis floriferis brevibus subgracilibus in statu adulto tuberculatis; folia suboblongo-elliptica acute acuminata basi rotundata, uno latere multo breviore, 20 cm. longa 7–8 cm. lata ubique pinnati-nervia, petiolo 5–10+10 mm. longo alato; spicae 120 mm. longae 3 mm. crassae, pedunculo gracili 10 mm. longo; bracteae triangulari-subpeltatae brunnescentes ciliatae; baccae depresso-ellipsoideae, stigmatibus 3 minutis sessilibus.

Loreto: Iquitos, *Llewelyn Williams 1432* (herb. Field Mus. No. 617,448, type). Punchana near Iquitos, *Williams 1332*. Iquitos, *Killip & Smith 26899*. Yurimaguas, *Killip & Smith 28181*.—Junín: Puerto Yessup, *Killip & Smith 26275*. "Cordoncillo."

Piper itayanum Trelease, sp. nov.

Frutex glaber minute nigro-granulosus, internodiis floriferis breviusculis gracilibus; folia lanceolato-ovata breviter acuminata saltem basi infima acuta, uno latere breviora, 24–29 cm. longa 10–11 cm.

lata ubique pinnatinervia, nervis 15×2, petiolo vix 5+3 mm. longo exalato; spicae 60–80 mm. longae 10 mm. crassae, pedunculo 10 mm. longo; bracteae triangulari-subpeltatae; baccae subteretes vel vulgo acute 3–4-gonae; stigmata 3 sessilia.

Loreto: Paraíso, Alto Río Itaya, in forest, 145 meters, *Llewelyn Williams 3320* (herb. Field Mus. No. 623,464, type). San Antonio, *Williams 3509*. Soledad, *Killip & Smith 29617*. Yurimaguas to Balsapuerto, *Killip & Smith 28130*. Iquitos, *Killip & Smith 27245*. Puerto Bermúdez, *Killip & Smith 26453*.—Junín: Puerto Yessup, 400 meters, in forest, *Killip & Smith 26260*.

Piper itayanum var. **antoniense** Trelease, var. nov.

Folia subovato-elliptica 25–30 cm. longa 12–14 cm. lata; spicae 80–140 mm. longae 10 mm. crassae.

Loreto: San Antonio, 110 meters, *Killip & Smith 29450* (type in U. S. Nat. Herb.). Iquitos, *Killip & Smith 27324*, the spikes mucronate.

Piper itayanum var. **pichisense** Trelease, var. nov.

Folia late elliptica 20–22 cm. longa 9–11 cm. lata; spicae 50–100 mm. longae 10 mm. crassae.

Junín: Cahuapanas, Río Pichis, 340 meters, *Killip & Smith 26738* (type in U. S. Nat. Herb.), *26725*, *26750*. Puerto Yessup, *Killip & Smith 26260*.

Piper itayanum var. **san-juanum** Trelease, var. nov.

Folia magis elliptica 22–25 cm. longa 11 cm. lata, latere majore basi magis obtuso, petiolo 2 cm. longo; spicae juveniles 95 mm. longae 7 mm. crassae.

Loreto: San Juan, Iquitos, 120 meters, *Llewelyn Williams 3720* (herb. Field Mus. No. 618,346, type).

Piper jaculifolium Trelease, sp. nov.

Frutex 3-metralis, pagina inferiore folii excepta glaber, internodiis gracilibus elongatis; folia lanceolata 21 cm. longa 7 cm. lata, vel subovata et 10 cm. lata, protracto-acuminata, basi fere aequilaterali acuta e quarto inferiore submultiplinervia, nervis circa 5×2, subtus stellato-pubescentia, petiolo 15–20 mm. longo alato; spicae juveniles 30 mm. longae 2–3 mm. crassae, pedunculo 10 mm. longo paullo pubescente; bracteae triangulari-subpeltatae.

Junín: La Merced, 700 meters, *Killip & Smith 24060* (type in U. S. Nat. Herb.).

Piper Kanehiranum Trelease, sp. nov.

Frutex nodosus, internodiis floriferis brevibus crassiusculis velutinis; folia lanceolata acuta basi cordata 12 cm. longa 4 cm. lata e dimidio inferiore pinnatinervia, nervis circa 5×2, supra punctulata, subtus ad nervos adpresso-pubescentia, in sicco tenuia conduplicata, statu adulto minute rugosa, petiolo vix 5 mm. longo; spicae curvae 50 mm. longae 2–3 mm. crassae, pedunculo 5 mm. longo.

Huánuco: Pampayacu, *Ryozo Kanehira 14* (herb. Field Mus. No. 580,066, type).

The leaves are said to be used medicinally.

Piper kimpitirikianum Trelease, sp. nov.

Frutex nodosus 3–4-metralis, internodiis floriferis gracilibus brevibus crispe breviter griseo-villosis; folia lanceolata longe anguste acuminata basi inaequilaterali acuta 10–13 cm. longa 4–5 cm. lata e dimidio inferiore pinnatinervia, nervis circa 5×2, subtus ad nervos breviter villosa, in sicco tenuia, petiolo 3+2 cm. longo breviter villoso; spicae 95–120 mm. longae 2 mm. crassae obtusae, pedunculo 7 mm. longo plus minusve piloso; bracteae inconspicuae; baccae rotundatae, stigmatibus 3 minutis sessilibus.

Ayacucho: Near Kimpitiriki, Río Apurímac, 400 meters, *Killip & Smith 22847* (type in U. S. Nat. Herb.).

Piper Klugianum Trelease, sp. nov.

Frutex 1.5 m. altus, internodiis floriferis gracilibus modice brevibus crispo-pilosis; folia lanceolata subacuminata basi fere aequilaterali acuta 20 cm. longa 5.5–7 cm. lata ubique pinnatinervia, nervis 10–12×2, vix nigro-punctulata (plus minusve transiente?), subtus crispo-pilosa, in sicco tenuia, petiolo 15–20 mm. longo ad medium vel altius alato crispo-piloso; spicae juveniles 25 mm. longae 3 mm. crassae, pedunculo crasso 5 mm. longo glabrato; bracteae triangulari-subpeltatae; ovarium ovoideum, stigmatibus 3 rotundatis sessilibus.

Loreto: Mishuyacu near Iquitos, 100 meters, in forest, *G. Klug 1493* (herb. Field Mus. No. 627,496, type), *146*.

The spikes are said to be red-brown.

Piper lagenaebaccum Trelease, sp. nov.

Frutex vel arbor 3–5-metralis, internodiis floriferis gracilibus elongatis, primo pilis rigidulis albidis villosis; folia elliptica vel subovato-lanceolata subacuminata basi obtusa, uno latere auriculato et petiolum velante, 10–11 cm. longa 3–5 cm. lata e 2 tertiis inferioribus

vel fere undique pinnatinervia, nervis validis circa 5×2, supra sparse subtus ad nervos densius rigido-villosa, rigido-ciliata, petiolo vix 5 mm. longo villoso; spicae pendulae 20 mm. longae 8 mm. crassae, pedunculo 10 mm. longo pallido-villoso; bracteae crescenticae; baccae lagenaeformes longiattenuatae, stigmatibus 3 apice styli insertis.

Junín: Puerto Yessup, 400 meters, *Killip & Smith 26249* (type in U. S. Nat. Herb.), *26244*. Santa Rosa, *Killip & Smith 26175*. Puerto Bermúdez, *Killip & Smith 26570*.—Loreto: Pebas, *Williams 1626*.

Piper lamasense Trelease, sp. nov.

Frutex, internodiis floriferis brevibus gracilibus sparse pallido-villosis; folia rotundo-elliptica vel subovata acuminata basi inaequilaterali cordulata vel subcordata 12–15 cm. longa 6–9 cm. lata e dimidio inferiore pinnatinervia, nervis 6×2, paullo rugosa, supra sparse molliter pubescentia, subtus ad nervos crispe fulvo-pubescentia, petiolo 10 mm. longo exalato, dense fulvo-pubescente; spicae 90 mm. longae 3 mm. crassae, pedunculo gracili 10–15 mm. longo breviter villoso; bracteae rotundo-subpeltatae ciliolatae; baccae subteretes depresso-truncatae, stigmatibus 3 parvis sessilibus.

San Martín: Lamas near Tarapoto, 840 meters, *Llewelyn Williams 6401* (herb. Field Mus. No. 623,619, type). "Cordoncillo."

Piper lanceaefolium HBK. Nov. Gen. & Sp. 1: 49. 1815. *Schilleria lanceaefolia* Kunth, Linnaea 13: 703. 1839. *Artanthe lanceaefolia* Miq. Syst. 433. 1844; Ill. Piper. *pl. 79*.

A shrub with silky twigs; leaves lance-elliptic, acuminate, slightly inequilaterally rounded at the base or cordulate, 15–17 cm. long, 4.5–6 cm. wide, pinnately nerved from the lower half, the nerves about 8×2, deeply impressed above and salient beneath; petiole 5+2 mm. long, silky; spikes curved, 50 mm. long, 3 mm. thick; peduncle 10 mm. long; berries triquetrous; stigmas 3, sessile.

Cajamarca: Venta, Jaén de Bracamoros, *Humboldt* in Herb. Willdenow, *No. 661*.—Loreto: Santa Rosa, *Killip & Smith 28994*. Mainas, *Poeppig 2289*.—Upper Amazon, *Mathews 1704* or *1714*.

Piper lanceolatum R. & P. Fl. 1: 36. *pl. 61*. 1798. *Steffensia evonymifolia* Kunth, Linnaea 13: 624. 1839. *Artanthe Brunoniana* Miq. Syst. 509. 1844; Ill. Piper. *pl. 87*.

A glabrous or obscurely and transiently puberulent shrub; leaves lanceolate, gradually acute, acute-based, 8–13 cm. long, 2–3.5 cm. wide, pinnately nerved throughout; petiole 5–10 mm. long;

spikes 15–20 mm. long, 3 mm. thick, blunt; peduncle 5 mm. long; bracts rounded-subpeltate; berries round; stigmas 3, small, sessile.

Huánuco: Chacahuassi, *Ruiz & Pavón*, type.—Loreto(?): Mainas(?), *Poeppig 1434, 219.*

Piper lanosicaule Trelease, sp. nov.

Frutex 3-metralis nodosus, internodiis floriferis gracillimis brevibus pallide breviter lanoso-villosis; folia lanceolata anguste acuminata basi plus minusve inaequilaterali et angustata obtusa, 9–13 cm. longa 2.5–5 cm. lata e dimidio inferiore pinnatinervia supra pilis minutis arcte adpressis scabrida, subtus ad nervos incurvo-hirsuta, petiolo 3+3 mm. longo sublanoso exalato; spicae 50 mm. longae 3 mm. crassae, pedunculo vix 10 mm. longo plus minusve piloso; bracteae rotundo-peltatae.

Junín: Schunke Hacienda, San Ramón, 1,400–1,700 meters, *Killip & Smith 24723* (type in U. S. Nat. Herb.). Eneñas, *Killip & Smith 25646.*

Piper late-ovatum Trelease, sp. nov.

Frutex humilis nodosus ubique tomentulosus, costa folii subtus villosa, internodiis floriferis brevibus modice gracilibus; folia late ovata subabrupte acuminata basi rotundata vel subemarginata 20–24 cm. longa 13–17 cm. lata e 2 tertiis inferioribus submultiplinervia, nervis circa 7×2, in sicco tenuia brunnescentia, petiolo 2 cm. longo exalato; spicae acutae, juveniles 60 mm. longae 3 mm. crassae, pedunculo 5 mm. longo bicarinato; bracteae rotundo-subpeltatae ciliolatae.

San Martín: San Roque, in forest, 1,350–1,500 meters, *Llewelyn Williams 7083* (herb. Field Mus. No. 623,091, type).

Piper laurinum R. & S. Syst. 1: 291. 1817. *P. laurifolium* HBK. Nov. Gen. & Sp. 1: 47. 1815, non *P. laurifolium* Mill. 1758. *Schilleria laurifolia* Kunth, Linnaea 13: 691. 1839. *Artanthe laurifolia* Miq. Syst. 520. 1844; Ill. Piper. *pl. 89.*

A glabrous shrub; leaves elliptic or subovate, acuminate, rounded at the base, 9.5–13 cm. long, 4–7 cm. wide, pinnately nerved from the lower half or more, the nerves 4–5×2, drying coriaceous, glossy above, paler beneath; petiole 10 mm. long; spikes 100 mm. long, 3 mm. thick, flexuous; peduncle 5 mm. long; berries subtriquetrous, obpyramidal, somewhat pointed; stigmas sessile.

La Libertad: Type collected between Chala and Trujillo, *Humboldt* as *No. 654* in Herb. Willdenow. Trujillo, *Bonpland 161.*

Piper Lechlerianum C. DC. in DC. Prodr. 16, pt. 1: 269. 1869.

A shrub with loosely villous twigs; leaves ovate, acuminate, inequilaterally cordulate, 20 cm. long, 8 cm. wide, pinnately nerved from the lower half, the nerves about 6×2, white-granular-scabrous above, loosely hirsute-villous beneath; petiole about 5+5 mm. long; spikes 120 mm. long, 3 mm. thick; peduncle 10 mm. long.

Puno: Sangabán, *Lechler 2438*, type.

Piper Lehmannianum (Miq.) C. DC. in DC. Prodr. 16, pt. 1: 368. 1869. *Artanthe Lehmanniana* Miq. Lond. Journ. Bot. 4: 446. 1866. *P. salicariaefolium* var. *Lehmannianum* C. DC. op. cit. 317.

A slender shrub; twigs glabrous, pale-granular, zig-zag; leaves lance-oblong or elliptic-oblong, acuminate, subobtuse at the base, 10–12 cm. long, 3–3.5 cm. wide, pinnately nerved from the lower half, the nerves 4–5×2, appressed-pubescent beneath; petiole 5 mm. long; spikes 2–3 mm. thick, 70 mm. long; peduncle 5–10 mm. long.

Huánuco: Casapí, *Mathews 1694*, type.—Junín: Puerto Yessup, *Killip & Smith 26297*.—Loreto: Soledad, *Killip & Smith 29551*.—San Martín: Tarapoto, *Williams 6742*. "Cordoncillo."

Piper leticianum C. DC. Verh. Bot. Ver. Brandenb. 47: 104. 1905.

A yellow-villous shrub; leaves lance-oblong, subacute, acute-based, 22 cm. long, 7 cm. wide, pinnately nerved throughout; petiole 2 cm. long; spikes curved, 20 mm. long, 5 mm. thick; peduncle 5 mm. long, curved; bracts crescentic-subpeltate, fringed; stigmas sessile.

Loreto: Leticia, *Ule 6216*, type. La Victoria, in forest, *Williams 3018*.

Piper leticianum var. **Tessmannii** Trelease, var. nov.

Folia supra glabrescentia basi inaequilateralia, uno latere rotundato; spicae 30 mm. longae.

Loreto: Mouth of Río Santiago, Río Marañón, *Tessmann 3946* (type in herb. Berol.).

Piper leucofustum Trelease, sp. nov.

Frutex 3-metralis, internodiis floriferis brevibus gracilibus persistente pilis arcte retrorso-adpressis albidis; folia ovata obtuse vel emarginate subacuminata basi inaequilaterali cordulata 9–10 cm. longa 4–5 cm. lata e dimidio inferiore pinnatinervia, nervis 6×2,

basibus incrassatis pilorum caducorum mollium albido-scabra, subtus ad nervos venasque conspicue molliter albido-pubescentia, petiolo 5+5 mm. longo adpresso-piloso basi vaginante; spicae 90 mm. longae 3 mm. crassae acutae, pedunculo vix 10 mm. longo retrorse albido-piloso; bracteae parvae rotundo-subpeltatae ciliolatae.

Junín: La Merced, 70 meters, *Killip & Smith 23736* (type in U. S. Nat. Herb.).

Piper leucophaeocaule Trelease, sp. nov.

Frutex, internodiis gracilibus elongatis rigido-pilosis serius scabris; folia elliptica acuminata basi inaequilaterali subobtusa 16–18 cm. longa 7–8 cm. lata e dimidio inferiore pinnatinervia, nervis 6×2, utrinque dense breviter scabra, subtus ad nervos hispida, petiolo 10+2 mm. longo; spicae juveniles graciles mucronatae, pedunculo griseo.

Loreto: Lower Río Nanay, *Llewelyn Williams 301* (herb. Field Mus. No. 603,748, type). Iquitos, *Killip & Smith 27037, 27469.*— Junín: Schunke Hacienda, San Ramón, *Killip & Smith 24629.*

Piper leucophaeum Trelease, sp. nov.

Frutex gracilis subgriseus, internodiis floriferis brevibus gracilibus scabris; folia lanceolata vel subovata sensim acuminata basi obtusa uno latere paullo minore 8–9 cm. longa 3 cm. lata e dimidio inferiore pinnatinervia, nervis 4×2, supra minute pubescentia serius granulosa et lepidota, subtus ad nervos breviter strigosa, petiolo 3+2 mm. longo exalato; spicae juveniles 35 mm. longae 2 mm. crassae acutatae, pedunculo 3 mm. longo scabrido; bracteae rotundo-subpeltatae ciliolatae.

San Martín: Tarapoto, in forest, 750 meters, *Llewelyn Williams 6086* (herb. Field Mus. No. 618,084, type).

Piper ligatispicum Trelease, sp. nov.

Arbor 4–5-metralis foliis subtus obscure puberulis exceptis glabra, internodiis floriferis subgracilibus longis; folia subelliptica obtuse breviter acuminata basi inaequilaterali cordata, latere longiore petiolo duplo breviore, 30 cm. longa 17 cm. lata e dimidio inferiore vel paullo altius subpinnatinervia, nervis circa 7+8, subtus versus apicem basinque obscure puberula, petiolo 5+1 cm. longo alato; spicae 400 mm. longae 5 mm. crassae vel in statu fructifero majores, ad pseudoverticilla bractearum spiraliter ligatae, pedunculo 2 cm. longo; bracteae rotundo-subpeltatae brunneae ciliatae; baccae rotundatae vel subcubicae brunneae glabrae, stigmatibus sessilibus.

Loreto: Yurimaguas, 135 meters, *Killip & Smith 28183* (type in U. S. Nat. Herb.).

Piper lineatum R. & P. Fl. 1: 35. *pl. 60.* 1798. *Schilleria lineata* Kunth, Linnaea 13: 704. 1839. *Artanthe lineata* Miq. Syst. 459. 1844; Ill. Piper. *pl. 80.* *P. limatum* Auct., by error.

A nodose shrub; axes and nerves beneath subvillous, more or less glabrescent in age; leaves lance-elliptic, acuminate, inequilaterally subacute at the base, 9–11 cm. long, 3–4 cm. wide, pinnately nerved from the lower half, the nerves, 5–6×2, lineately impressed above and salient beneath, chartaceous, rugose, granular-roughened; petiole 10 mm. long; spikes curved, about 100 mm. long, 3 mm. thick; peduncle 10–15 mm. long; bracts triangular-subpeltate. Neg. 8417.

Huánuco: Chinchao, Río Huánuco, and Panao, *Ruiz & Pavón*, type. Huancabamba, *Esposto 335a, 336.* Huánuco Mountains, *Haenke.* Chinanugula, *Gilg 38.*—Cuzco: Santa Ana valley, *Herrera 986.*—San Martín: San Roque, in the forest, *Williams 7121.* "Cordoncillo."

Piper lineatum var. **cordulatum** Trelease, var. nov.

Folia basi rotundata et cordulata.

Type collected in Peru, *Mathews 1691* (type in herb. Kew.).—Junín: Perené, *Nordenskjold & Rospigliosi 147.*

Piper lineatum var. **leucolepidum** Trelease, var. nov.

Cito glabrata; folia obscure versus basin granulosa 14 cm. longa 5 cm. lata; spicae 90–100 mm. longae, pedunculo 15 mm. longo; bracteae pallidae.

Junín: Carrapa, 1,000 meters, *Killip & Smith 22495* (type in U. S. Nat. Herb.), *22451.*—Ayacucho: Aina, *Killip & Smith 22565.*

Piper lineatum var. **hirtipetiolatum** Trelease, var. nov.

Frutex metralis valde nodosus, internodiis modice brevibus gracilibus retrorse albido-hispidis pallido-granulosis, folia lanceolato-elliptica attenuata basi plus minusve inaequali acuta 13 cm. longa 4.5–5 cm. lata e dimidio inferiore pinnatinervia, nervis profunde impressis 5–6×2, obscurissime rugosa sublucida, supra conspicue albido-granulosa, subtus laxe crispo-pubescentia nervis hirsutis, petiolo 5–10 mm. longo subadpresso-hirsuto basi alato; spicae oppositifoliae rectae vel serius arcuatae 80 mm. longae 3 mm. crassae, pedunculo 10 mm. longo retrorso-hispido; bracteae rotundo-subpeltatae ciliatae, floribus sessilibus perfectis.

Huánuco: Huacachi near Muña, 1,950 meters, *Macbride 4182* (herb. Field Mus. No. 535,259, type).

Piper llatanum Trelease, sp. nov.

Frutex 2–4-metralis nodosus glaber, internodiis floriferis brevibus crassis microscopice glanduloso-granulosis; folia late ovata subacuta basi lata brevissime cordata parva 7–10 cm. longa 4–8 cm. lata e parte inferiore 1–1.5 cm. longa submultiplinervia, nervis circa 3×2, opaca, subtus dense brunneo-puncticulata, petiolo 10–12 mm. longo circum caulem in lineam ciliatam protracto exalato; spicae erectae pallido-flavae 60 mm. longae 4 mm. crassae, pedunculo 8 mm. longo; bracteae rotundo-subpeltatae ciliolatae.

Huánuco: Llata, Río Marañón Canyon, 2,100 meters, *Macbride & Featherstone 2302* (herb. Field Mus. No. 518,785, type).

Piper longeacuminatum Trelease, sp. nov.

Frutex nodosus, internodiis superioribus modice brevibus et gracilibus molliter pilosis; folia ovata anguste longiacuminata basi subaequilaterali obtusa 15 cm. longa 6 cm. lata e dimidio inferiore pinnatinervia, nervis 5×2, in sicco modice firma brunnea, supra minute granuloso-asperata, subtus ferrugineo-subtomentosa, petiolo 1 cm. longo ferrugineo-tomentoso exalato; inflorescentia non visa.

Junín: Hacienda Schunke, 1,300–1,700 meters, *Carlos Schunke A90* (type in U. S. Nat. Herb.).

Piper longegerminatum Trelease, sp. nov.

Frutex nodosus in sicco fuscus, ramis longis gracilibus, internodiis floriferis gracilibus brevibus retrorso-subcanescentibus; folia lanceolata acuta basi subaequilaterali subacuta 12 cm. longa 3–5 cm. lata e dimidio inferiore pinnatinervia, nervis 5×2, tenuia, supra minute griseo-scabrida, subtus ad nervos strigosa, petiolo 5 mm. longo griseo-scabrido; spicae 35 mm. longae 2 mm. crassae mucronatae, pedunculo 3 mm. longo cinereo; bracteae parvae rotundo-peltatae ciliolatae.

Loreto: Santa Rosa, 135 meters, *Killip & Smith 28839* (type in U. S. Nat. Herb.). Balsapuerto, *Killip & Smith 28439.*

Piper longestamineum Trelease, sp. nov.

Arbor glabra 5–6-metralis, internodiis floriferis gracilibus varie elongatis; folia protracta elliptica obtusa basi inaequilateralia, sinu laterali clauso, latere longiore auriculato et petiolo longiore, 30 cm.

longa 12 cm. lata e dimidio inferiore subpinnatinervia, nervis 5–6×2, in sicco tenuia sublucida, petiolo 4 cm. longo et ultra alato; spicae 200 mm. longae 4 mm. crassae, pedunculo gracili recurvo 3 cm. longo; bracteae rotundo-subpeltatae ciliolatae; filamenta longa gracilia, antheris ellipsoideis; stigmata 3 filiformia.

Junín: San Nicolás, 1,100 meters, *Killip & Smith 26011* (type in U. S. Nat. Herb.).

Piper longifilamentosum Trelease, sp. nov.

Arbor 4–5-metralis nervis folii subtus griseo-puberulis exceptis glabra, internodiis floriferis longis gracilibus; folia elliptico-subobovata obtusa basi inaequilateralia, sinu laterali, lobo longiore protracto et petiolo longiore, 37 cm. longa 16 cm. lata e dimidio inferiore pinnatinervia, nervis circa 6×2, in sicco tenuia et plus minusve lucida, petiolo 6–7 mm. longo; spicae 110 mm. longae 5 mm. crassae, pedunculo gracili 3 cm. longo; bracteae triangulari-subpeltatae; filamenta gracilia longiexserta; baccae globosae, stylo gracili, stigmatibus 3 linearibus.

Junín: Puerto Bermúdez, 375 meters, *Killip & Smith 26452* (type in U. S. Nat. Herb.).

Piper longifolium R. & P. Fl. 1: 37. 1798. *Schilleria longifolia* Kunth, Linneaea 13: 725. 1839. *Peltobryon longifolium* Miq. Syst. 373. 1844.

A glabrous, more or less glandular-granular shrub; leaves elliptic-subobovate, abruptly short-acuminate, almost equilaterally long-acute at the base, 32–41 cm. long, 13–18 cm. wide, pinnately nerved throughout; petiole 3–4 cm. long, winged by the decurrent blade; spikes gently curved, 110 mm. long, 10 mm. thick; peduncle 15 mm. long; berries round, with an elongate style; stigmas small.—Not at all corresponding to the illustration of R. & P. loc. cit. *pl. 61.*

Huánuco: Forests of Pillao, *Ruiz & Pavón*, type; *Ruiz 152*, and *No. 641* in Herb. Willdenow.—Loreto (?): Huallaga, *Mathews 1712.* —Junín: Schunke Hacienda, San Ramón, *Killip & Smith 24552.*

Piper loretoanum Trelease, sp. nov.

Frutex 3–4-metralis plus minusve nodosus, internodiis floriferis brevibus modice gracilibus plus minusve sparse incurvo-subvillosis; folia subovato-elliptica anguste acuminata basi inaequilaterali obtusa latere breviore subcordulato, 15–17 cm. longa 6.5–7 cm. lata e dimidio inferiore pinnatinervia, nervis 5×2, in statu adulto rugosa, supra conspicue granuloso-scabra, subtus ad nervos subvillosa et

inter nervos molliter pilosa, petiolo 3+3 mm. longo rigide subvilloso; spicae juveniles 60 mm. longae 2 mm. crassae, pedunculo vix 5 mm. longo subvilloso.

Loreto: Yurimaguas, 135 meters, *Killip & Smith 27555* (type in U. S. Nat. Herb.). Lower Río Huallaga, *Williams 4785.*

Piper Macbrideanum Trelease, sp. nov.

Frutex 2.5 m. altus, ramis divaricatis cavis glabris; folia elliptico-oblonga ad subovata longiuscule acuminata basi subacuta vel rotundata et acute contracta, mediocria 6–16 cm. longa 5.5–9 cm. lata e 2 tertiis inferioribus pinnatinervia, nervis majoribus valde sursum curvatis 4×2, supremis ex proximis distantibus, in sicco subtenuia papyracea, petiolo 5–10 vel ad 30 mm. longo alato; spicae oppositifoliae 60–90 mm. longae 2–3 mm. crassae, pedunculo gracili 5–10 mm. longo; bracteae rotundo-subpeltatae ciliolatae inconspicuae, floribus sessilibus perfectis; stigmata 3 minuta sessilia.

Junín: La Merced, on forest slope, 600 meters, *Macbride 5516* (herb. Field Mus. No. 536,556, type).

Piper machupicchuense Trelease, sp. nov.

Frutex nervis folii subtus obscure adpresso-pubescentibus exceptis glaber, in sicco griseo-viridis, internodiis floriferis gracilibus elongatis; folia ovata vel ovato-oblonga plus minusve acuminata basi rotundata et interdum uno latere breviora, 14 cm. longa 5–7 cm. lata vel usque ad 9 cm. lata e dimidio inferiore multiplinervia, nervis 4–5×2, in sicco tenuia, petiolo 15 mm. longo semi-alato; spicae 60–100 mm. longae 3 mm. crassae, pedunculo 5–10 mm. longo; bracteae conspicuae triangulari-subpeltatae ciliatae; ovarium suboblongo-truncatum, stigmatibus 3 filiformibus vix connatis.

Cuzco: San Miguel, Valle de Machupicchu, 2,300 meters, *Fortunato L. Herrera 2006* (herb. Field Mus. No. 580,236, type).

Piper magnificum (Linden) Gentil, Pl. Serr. Jard. Brux. 152. 1907, nomen. *Artanthe magnifica* Linden, Cat. 1876; Ill. Hort. 23: *pl. 239.* 1876. *A. decurrens* Fourn. Ill. Hort. 23: 58. 1876, non *A. decurrens* Miq.

A soft-wooded shrub, glabrous except for the puberulent nerves beneath and the obscure striation of petiole and stem; leaves elliptic, ranging to oblong and ovate, subacuminate, shallow-cordate, 15–22 cm. long, 7–11 cm. wide, pinnately nerved throughout, purple beneath; petiole 1–5 cm. long, broadly winged; spikes 15 mm. long, 6 mm. thick, cuspidate; peduncle becoming equally long; bracts

rounded-subpeltate; berries round, with a slender style; stigmas short, spreading.

Loreto: Balsapuerto, *Killip & Smith 28394, 28420, 28598.*

Piper malifolium Trelease, sp. nov.

Frutex compactus 2-metralis valde nodosus, internodiis floriferis brevibus gracilibus persistente adpresso-hispidis; folia elliptica acuminata basi plus minusve inaequali obtusa 15–16 cm. longa 6–7.5 cm. lata e dimidio inferiore pinnatinervia, nervis circa 5×2, scabra, subtus ad nervos patenti-hirsuta, in statu adulto rugosa, petiolo 10–15 mm. longo hirsuto basi alato; spicae oppositifoliae 90 mm. longae 2–3 mm. crassae, pedunculo 5 mm. longo adpresso-hispido; bracteae rotundo-subpeltatae dense ciliolatae, floribus sessilibus perfectis.

Huánuco: Posuso, 600 meters, *Macbride 4620* (herb. Field Mus. No. 535,697, type).

Piper malifolium var. **mercedanum** Trelease, var. nov.

Arbor gracilis 5-metralis nodosa, internodiis floriferis subelongatis gracilibus hirtellis; folia subelliptica acuminata basi subinaequali obtusa 14–15 cm. longa 6–7 cm. lata e dimidio inferiore pinnatinervia, nervis 5–6×2, scabra, subtus ad nervos villosa, venis in statu adulto paullo impressis, petiolo 10–15 mm. longo hirsuto basi alato; spicae oppositifoliae 80–100 mm. longae 2–3 mm. crassae, pedunculo 10 mm. longo hirtello; bracteae rotundo-subpeltatae ciliolatae, floribus sessilibus perfectis; baccae breviter cylindraceae truncatae; stigmata 3 minuta sessilia.

Junín: La Merced, 600 meters, *Macbride 5288* (herb. Field Mus. No. 536,313, type).

Piper mansericheanum Trelease, sp. nov.

Frutex, ramis transiente crispo-pubescentibus; folia anguste lanceolata sensim acuminata basi acuta 13 cm. longa 1.5–2.5 cm. lata e dimidio inferiore pinnatinervia, nervis circa 3×2 utrinque minute glanduloso-granulosa, subtus pallidiora ad nervos adpresso-pubescentia, petiolo 10 mm. longo; spicae 50 mm. longae 2 mm. crassae mucronatae, pedunculo gracili 10–15 mm. longo; baccae parvae teretes, stigmatibus sessilibus.

Loreto: Pongo de Manseriche, *Tessmann 3883* (type in herb. Berol.).

Piper maranyonense Trelease, sp. nov.

Frutex glaber; folia lanceolato-oblonga acuta basi subaequilaterali acuta 22 cm. longa 8 cm. lata ubique pinnatinervia, nervis circa 12×2, plus minusve indistincte glanduloso-granulosa, petiolo vix 10 mm. longo; spicae 60 mm. longae 6 mm. crassae curvae obtusae, pedunculo 15 mm. longo; bracteae triangulari-subpeltatae; baccae rotundatae, stigmatibus 3 latis sessilibus.

Loreto: Mouth of Río Santiago, upper Marañón, 160 meters, *Tessmann 4056* (type in herb. Berol.).

Piper marcescentispicum Trelease, sp. nov.

Frutex vel arbor 3–5-metralis, internodiis floriferis brevibus crassiusculis primo sparse crispo-pilosis glabrescentibus; folia elliptica subacuminata basi fere aequilaterali acuta 16–20 cm. longa 6–8 cm. lata fere ubique pinnatinervia, nervis circa 6–8×2, in sicco tenuia viridia, subtus ad nervos incurvo-hirsuta, petiolo 10 mm. longo exalato; spicae pendulae 40 mm. longae 2 mm. crassae acutae, pedunculo gracili 10 mm. longo glabrato; bracteae rotundo-subpeltatae, margine angusto lacerato.

Junín: Pichis Trail, 625–900 meters, *Killip & Smith 26182* (type in U. S. Nat. Herb.).

Piper margaritatum Trelease, sp. nov.

Frutex, internodiis floriferis brevibus crassiusculis hirsutis; folia late lanceolata vel lanceolato-ovata longiacuminata basi plus minusve inaequilaterali cordulata 10–12 cm. longa 4–5 cm. lata e dimidio inferiore pinnatinervia, nervis 4–5×2, supra grosse lepidoto-asperata, subtus ad nervos hispida, petiolo 5 mm. longo; spicae juveniles 45 mm. longae 2 mm. crassae, pedunculo sericeo 8 mm. longo.

San Martín: San Roque, in forest, 1,350–1,500 meters, *Llewelyn Williams 7742* (herb. Field Mus. No. 623,556, type). "Cordoncillo."

Piper marsupiiferum Trelease, sp. nov.

Frutex metralis, internodiis floriferis comparate brevibus et gracilibus breviter villosis; folia anguste triangularia vel lanceolato-oblonga subobtusa basi inaequilateralia, sinu laterali, latere longiore in auriculam petiolo fere duplo longiorem producto, 30 cm. longa 8–9 cm. lata e 2 tertiis inferioribus subpinnatinervia, nervis 4–5×2, nervis supplementariis in auricula dispersis, in sicco tenuia, subtus ad nervos breviter villosa, areolis inter venas majores crescentiis bursiformibus completis, petiolo 3–4 cm. longo anguste alato patenti-

piloso; spicae juveniles 25 mm. longae 2 mm. crassae, pedunculo gracili aequilongo piloso; bracteae rotundo-subpeltatae.

Loreto: Soledad, Río Itaya, 110 meters, *Killip & Smith 29606* (herb. Field Mus. No. 688,345, type).

Piper martinense Trelease, sp. nov.

Frutex nodosus, internodiis floriferis subgracilibus brevibus breviter adpresso-villosis; folia lanceolato-oblonga sensim acuminata basi subaequilaterali breviter cordata 25 cm. longa 6.5 cm. lata e dimidio inferiore pinnatinervia, nervis 6+7, supra leviter rugosa et basibus pilorum caducorum scabrida, subtus sparse pubescentia ad nervos subadpresso-villosa, petiolo 5 mm. longo adpresso-villoso; spicae uncatae 60 mm. longae 3 mm. crassae acutatae, pedunculo 10–15 mm. longo laxe piloso; bracteae rotundo-subpeltatae ciliatae.

San Martín: Lamas, near Tarapoto, 840 meters, *Llewelyn Williams 6407* (herb. Field Mus. No. 623,618, type).

Piper masiseanum Trelease, sp. nov.

Frutex vel arbuscula 3–4-metralis, internodiis gracilibus cito elongatis molliter adpresse retrorso-pilosis; folia subovata acuta basi inaequilaterali bicordulata 10 cm. longa 4 cm. lata e dimidio inferiore pinnatinervia, nervis 5+6, supra albide granuloso-scabra, subtus ad nervos pallide adpresso-pubescentia, petiolo 3+3 mm. longo basi tantum vaginante pallide adpresso-piloso; spicae 90 mm. longae 3 mm. crassae obtusae, pedunculo 10 mm. longo hispido; bracteae rotundo-subpeltatae ciliolatae.

Loreto: Masisea, 275 meters, *Killip & Smith 26846* (type in U. S. Nat. Herb.).

Piper Mathewsii C. DC. in DC. Prodr. 16, pt. 1: 261. 1869.

A shrub with densely appressed-yellow-hirsute twigs; leaves lanceolate, acute at both ends, 15 cm. long, 4.5 cm. wide, pinnately nerved throughout, granular-scabrous and loosely hairy above, densely appressed-hairy beneath; petiole 5–10 mm. long; spikes 40 mm. long, 3 mm. thick; peduncle 5–10 mm. long; bracts triangular-subpeltate, yellow; berries subquadrangular; stigmas 3, sessile.

Amazonas: Chachapoyas, *Mathews 3224*, type.

Piper mediocre C. DC. Verh. Bot. Ver. Brandenb. 47: 104. 1905.

A delicate shrub resembling *P. phthinotrichon* but with narrower, more lanceolate leaves, 7 cm. long and 2 cm. wide, more or less evanescently crisp-puberulent.

Loreto: Iquitos, *Ule 6245*, type. Above Iquitos, *Tessmann 3987*. San Antonio, *Killip & Smith 29428*. Mishuyacu, *Klug 1491, 467, 501; Killip & Smith 29965*. Soledad, *Killip & Smith 29563*.

Piper melendezense Trelease, sp. nov.

Frutex nodosus diffusus vel scandens, internodiis floriferis brevibus gracilibus minute crispo-pubescentibus in statu adulto plus minusve granulosis; folia elliptico-lanceolata acute acuminata basi angustata cordulata, uno latere paullo breviore, 8–11 cm. longa 3–5 cm. lata e dimidio inferiore pinnatinervia, nervis 5×2, supra minute granulosa, subtus pallida granulosa ad nervos adpresso-pubescentia, petiolo 55+1–2 mm. longo; spicae 100 mm. longae 2–3 mm. crassae, pedunculo gracili vix 10 mm. longo glabrato; bracteae transverse subpeltatae ciliolatae; baccae depressae, stigmatibus sessilibus.

Loreto: Puerto Meléndez, below Pongo de Manseriche, 200 meters, *Ynes Mexia 6382* (type in herb. Univ. Calif.).

Piper mellibracteum Trelease, sp. nov.

Frutex 1.5 m. altus valde nodosus, internodiis floriferis brevibus crassis evanescente subdense hamato-hirsuto-villosis pallide granulosis; folia lanceolato-oblonga longiattenuata basi inaequaliter cordulata, sinu clauso, 15–16 cm. longa 3.5–4 cm. lata e dimidio inferiore pinnatinervia, nervis circa 8×2, paullo rugosa, supra basibus pilis longis adpressis scabra et ad costam plus minusve barbata, subtus ad nervos subadpresso-villosa, petiolo brevissimo 5 mm. longo adpresso-hirsuto exalato; spicae oppositifoliae valde curvatae 90 mm. longae 3–4 mm. crassae, pedunculo 8 mm. longo sparse hirtello; bracteae rotundo-subpeltatae centro lutescente, margine pallido ciliato, floribus sessilibus perfectis; stigmata 3 minuta sessilia; baccae parvae cylindraceae.

Huánuco: Río Huallaga Canyon below Río Santo Domingo, 1,200 meters, *Macbride 4234* (herb. Field Mus. No. 535,313, type).

Piper mercedense Trelease, sp. nov.

Frutex 2–3-metralis, internodiis floriferis longiusculis modice gracilibus pallidis sparse breviter villosis glabrescentibus; folia lanceolato-elliptica acute falcato-acuminata basi inaequaliterali acuta, latere breviore plus minusve rotundato, 15–16 cm. longa 5–6 cm. lata e 2 tertiis inferioribus pinnatinervia, nervis circa 7×2, supra scabro-hispida et lepidoto-granulosa, subtus ad nervos albido-villosa, petiolo 3+5 mm. longo exalato; spicae floriferae 50 mm.

longae 2 mm. latae mucronatae, pedunculo gracili 15 mm. longo glabro vel sparse hirtello; bracteae triangulari-subpeltatae ciliatae.

Junín: La Merced, 700 meters, *Killip & Smith 23731* (type in U. S. Nat. Herb.).

Piper mikaniaefolium Trelease, sp. nov.

Frutex nodosus glaber (scandens?), ramis fuscis, internodiis superioribus brevibus gracilibus; folia elliptico-ovata vel lanceolato-ovata acuminata basi cordata 11–14 cm. longa 4.5–6.5 cm. lata e dimidio inferiore submultiplinervia, nervis 6×2, in sicco viridia, subtus minute nigro-granulosa, petiolo 15–25 mm. longo infra medium vaginante; spicae 20 mm. longae 4 mm. crassae, pedunculo 5 mm. longo recurvo; bracteae crescentico-subpeltatae; baccae teretes conice prolongatae, stigmatibus minutis.

Loreto: Yurimaguas to Balsapuerto, 135–150 meters, *Killip & Smith 30691* (type in U. S. Nat. Herb.).

Piper mishuyacuense Trelease, sp. nov.

Frutex 3-metralis, internodiis floriferis comparate brevibus gracilibus dense luteo-tomentulosis; folia elliptica plus minusve falcata breviter acuminata basi subacuta, uno latere paullo breviore, 16–20 cm. longa 7–8.5 cm. lata ubique pinnatinervia, nervis circa 12×2, subtus praesertim ad nervos minute tomentulosa, petiolo 10+2 mm. longo tomentuloso; spicae juvenes 35 mm. longae 6 mm. crassae, pedunculo crasso vix 10 mm. longo glabrato; baccae subteretes, stigmatibus 3 sessilibus.

Loreto: Mishuyacu near Iquitos, 100 meters, *Killip & Smith 29903* (type in U. S. Nat. Herb.). Balsapuerto, *Killip & Smith 28611*.

Piper mite R. & P. Fl. 1: 37. *pl. 58.* 1798. *Artanthe mitis* Miq. Syst. 407. 1844.

A shrub with glabrous twigs; leaves ovate, acuminate, subtruncate at the base, 20 cm. long, 11 cm. wide, submultiple-nerved from the lower half, the nerves about 7×2, stellate-pubescent beneath; petiole 2–3 cm. long, soft-pubescent; spikes 225 mm. long, 8 mm. thick; peduncle 25 mm. long, thick, pubescent; bracts triangular-subpeltate, ciliate; ovary round, with a short style; stigmas narrow.

Huánuco: Cochero, *Ruiz & Pavón*, type.

Piper mitifolium Trelease, sp. nov.

Frutex nodosus 2–3-metralis nervis folii subtus puberulis exceptis glaber, internodiis floriferis brevibus crassis; folia elliptica obtuse

breviter acuminata basi cordulata 16–22 cm. longa 7–11 cm. lata e 2 tertiis inferioribus submultiplinervia, nervis 6–8×2, lucida viridia plus minusve rugosa, petiolo 2 cm. longo alato; spicae 25 mm. longae 4 mm. crassae, fructiferae 40 mm. longae 10 mm. crassae, obscure apiculatae, pedunculo vix 10 mm. longo; bracteae triangulari-subpeltatae vel crescentico-subpeltatae ciliatae; baccae globosae, stigmatibus 3 sessilibus.

Junín: La Merced, 700 meters, in forest, *Macbride 5325* (herb. Field Mus. No. 536,350, type). Hacienda Chalhuapuquio, *Stevens 204*.

Piper Mocco-mocco Trelease, sp. nov.

Frutex glaber glanduloso-granulosus; folia elongato-elliptica brevissime obtuso-acuminata basi fere aequilaterali acuta 15 cm. longa 6 cm. lata ubique pinnatinervia, nervis circa 6×2, petiolo 2 cm. longo exalato; spicae leviter curvae 60 mm. longae 5 mm. crassae cuspidatae, pedunculo brevi; bracteae triangulari-subpeltatae ciliatae; baccae rotundatae, stigmatibus 3 parvis sessilibus.

Cuzco: Hacienda Potrero, Santa Ana, 1,250 meters, *Fortunato L. Herrera 954* (type in herb. Berol.). "Mocco-mocco."

Piper Mocco-mocco var. **angustum** Trelease, var. nov.

A forma typica foliis oblongis 18 cm. longis 5.5 cm. latis, pedunculo 10 mm. longo differt.

Cuzco: San Miguel, Urubamba Valley, 1,800 meters, *Cook & Gilbert 1123* (type in U. S. Nat. Herb.), *1124*.

Piper moense C. DC. Notizbl. Bot. Gart. Berlin 6: 491. 1917.

A shrub with loosely white-villous nodes; leaves elliptic-subacuminate, slightly inequilaterally cordulate, 15–16 cm. long, 7–9 cm. wide, pinnately nerved from below the upper third, the nerves about 6+7, microscopically granular above, dark-punctulate beneath and paler, with upcurved-pubescent nerves; petiole about 10 mm. long; spikes 20 mm. long, 10 mm. thick, cuspidate; peduncle barely 5 mm. long; bracts round-subpeltate; berries round, with an elongate slender style; stigmas small.

Brazil: Monte Mo, Rio Acre, *Ule 9286*, type. Probably extending into Peru.

Scarcely more than a glabrescent form of *P. xapuryense*.

Piper Mohomoho C. DC. Bot. Jahrb. 40: 251. 1908.

A shrub, crisp-puberulent or the petiole and leaf base cobwebby; leaves ovate, acuminate, cordulate, 7.5–8 cm. long, 4–5 cm. wide,

pinnately nerved from below the middle, the nerves 3×2; petiole 10 mm. long; spikes 60 mm. long, 2–3 mm. thick; peduncle 10 mm. long. Neg. 10995.

Cajamarca: San Pablo, 2,400–2,700 meters, in thicket, *Weberbauer 3839*, type. "Mohomoho."

Piper monostigmum C. DC. Notizbl. Bot. Gart. Berlin 7: 486. 1917.

A shrub, the young parts and the nerves beneath puberulent; leaves elliptic, acuminate, acute-based, 11–12 cm. long, 4.5–5 cm. wide, pinnately nerved from the lower half, the nerves 4–5×2; petiole 5–15 mm. long; spikes 30 mm. long, 3 mm. thick; peduncle 5 mm. long; bracts round-subpeltate, ciliate; stigma 1, sessile.

Brazil: Seringal Auristella, Rio Acre, *Ule 9273*, type. Seringal São Francisco, *Ule 9274*. Probably in adjacent Peru.

Piper monzonense C. DC. Bot. Jahrb. 40: 248. 1908.

A shrub, stiffly white-villous except for the upper surface of the leaves, or the branches glabrescent; twigs pale-warty; leaves lanceolate or elliptic-oblong, acuminate, acute-based, 20 cm. long, 6 cm. wide, pinnately nerved throughout; petiole 2 cm. long; spikes 100 mm. long, from filiform becoming 5 mm. thick; peduncle 10 mm. long; stigmas sessile. Neg. 10998.

Huánuco: Monzón, in forest, 1,000 meters, *Weberbauer 3429*, type.

Piper morator Trelease, sp. nov.

Frutex vel arbor 3–5-metralis nodosa, internodiis floriferis brevibus gracilibus; folia lanceolato-ovata acuminata basi subaequilaterali acuta 10–12 cm. longa 4–5 cm. lata e dimidio inferiore pinnatinervia, nervis plus minusve sursum curvatis 4×2, petiolo 5 mm. longo infra medium vaginante; spicae juvenes 15 mm. longae 2 mm. crassae, pedunculo brevi; bracteae rotundo-subpeltatae anguste alatae.

Junín: San Ramón, 900–1,300 meters, *Killip & Smith 24743* (type in U. S. Nat. Herb.).

Piper moyobambanum Trelease, sp. nov.

Frutex, ramis molliter subadpresso-pilosis; folia lanceolato-oblonga vel elliptico-oblonga subacuminata basi inaequilaterali cordulata 13 cm. longa 4 cm. lata e dimidio inferiore pinnatinervia, nervis circa 6+7, supra granuloso-scabrida, subtus ad nervos adpres-

so-pubescentia, petiolo brevissimo; spicae uncatae 110 mm. longae 3 mm. crassae, pedunculo glabrato; bracteae subdeltoideae flavae.

San Martín: Moyobamba, *Mathews* (type).—Amazonas: Chachapoyas, *Mathews 3225*.—Without locality, *Mathews 1693*.

Piper multimammosum Trelease, sp. nov.

Frutex 1–2-metralis, internodiis floriferis breviusculis gracilibus crispo-puberulis; folia subelliptica anguste acuminata basi subaequilaterali acuta 9–12 cm. longa 4.5–5.5 cm. lata ubique pinnatinervia, nervis circa 10×2, subtus ad nervos crispo-puberula, petiolo 5–15 mm. longo puberulo interdum alato; spicae pendulae 30–35 mm. longae 5 mm. crassae, pedunculo 5–10 mm. longo puberulo; bracteae inconspicuae concavae; baccae congestae mammaeformes, stigmatibus minutis mucronem terminantibus.

Junín: Puerto Bermúdez, 375 meters, *Killip & Smith 26645* (type in U. S. Nat. Herb.). Santa Rosa, 135 meters, *Killip & Smith 28848*. Puerto Arturo, *Killip & Smith 27786*. Yurimaguas, *Killip & Smith 27621*.

Piper munchanum Trelease, var. **latum** Trelease, var. nov.

Frutex minute glanduloso-granulosus glaber vel ad nervos folii subtus obscure puberulus; folia late elliptica 22–30 cm. longa 15–19 cm. lata breviter acuminata basi rotundata, uno latere 2–3 mm. breviore; spicae juvenes 25 mm. longae 5 mm. crassae.

San Martín: San Roque, 1,350–1,500 meters, in forest, *Llewelyn Williams 6954* (herb. Field Mus. No. 623,002, type), *6961*.

Piper mundum Trelease, sp. nov.

Frutex subvalidus, internodiis floriferis modice crassis brevibus pilis fragilibus incurvo-subvillosis; folia elliptica breviter acuminata basi paullo inaequilaterali cordulata 13–16 cm. longa 6.5–8.5 cm. lata e dimidio inferiore pinnatinervia, nervis ut venis impressis circa 7×2, supra minute aspero-granulosa, subtus ad nervos ut videtur sordide subvillosa, petiolo 7+3 mm. longo subvilloso exalato; spicae 150 mm. longae 4 mm. crassae acutatae, pedunculo 5 mm. longo griseo-piloso; bracteae rotundo-subpeltatae ciliatae; baccae teretes, stigmatibus sessilibus.

Loreto: Santa Rosa, Yurimaguas, in forest, 155–210 meters, *Llewelyn Williams 4758* (herb. Field Mus. No. 623,762, type).

Piper munyanum Trelease, sp. nov.

Frutex 1.5 m. altus nodosus, internodiis floriferis modice elongatis et gracilibus glabris sparsissime pallido-granulosis; folia rotundo-

ovata vel elliptico-ovata acuminata basi rotundata 5–16 cm. longa 4.5–10 cm. lata e tertio inferiore submultiplinervia, nervis circa 4×2, subtus pallidiora ad nervos sparse villosa ad nervulos hirtella, petiolo 2–3 cm. longo sparse dorso villoso alato; spicae oppositifoliae 60–80 mm. longae 4 mm. crassae, pedunculo subgracili 15 mm. longo sparse villoso; bracteae rotundo-subpeltatae vel triangulari-subpeltatae ciliatae, floribus sessilibus perfectis; ovarium glabrum in stylum brevem attenuatum, stigmatibus 3 patentibus.

Huánuco: Muña, 2,400 meters, in forest, *Macbride 4272* (herb. Field Mus. No. 535,354, type).

Piper musteum Trelease, sp. nov.

Frutex nodosus pilosus 1.5–2 m. altus, internodiis floriferis brevibus crassiusculis primo dense rigido-villosis glabrescentibus; folia elliptica acuminata basi fere aequilaterali acuta 15 cm. longa 6 cm. lata ubique pinnatinervia, nervis circa 10×2, utrinque sparse crispo-pilosa, subtus ad nervos rigido-villosa, petiolo 1–2 cm. longo pilosissimo; spicae 60 mm. longae 7 mm. crassae obtusae, pedunculo 1 cm. longo plus minusve pubescente; bracteae triangulari-subpeltatae ciliatae; baccae breviter cylindraceae granulosae interdum apice depressae mucronatae, stigmatibus 3.

Loreto: Santa Rosa, 135 meters, *Killip & Smith 28982* (type in U. S. Nat. Herb.).

Piper nanayanum Trelease, sp. nov.

Arbuscula glabra, internodiis floriferis comparate brevibus et crassis; folia subovato-elliptica subacuminata basi cordulata, uno latere distincte breviore, 15–16 cm. longa 7–7.5 cm. lata ubique pinnatinervia, nervis circa 12×2, in sicco tenuia, supra obscuriora et albo- vel purpureo-lepidoto-maculata, petiolo 5+5 mm. longo alato; spicae 100 mm. longae 2 mm. vel fructiferae 4 mm. crassae, pedunculo 10 mm. longo; bracteae rotundo-subpeltatae vel triangulari-subpeltatae ciliatae; baccae subglobosae, stigmatibus 3 minutis sessilibus.

Loreto: South bank of Río Amazonas, Nanay, *Llewelyn Williams 516* (herb. Field Mus. No. 603,936, type).

Piper nasutum Trelease, sp. nov.

Planta suffrutescens glabra, internodiis floriferis brevibus gracilibus nigrescentibus plus minusve papillosis; folia elliptica vel sublanceolata anguste acuminata basi paullo inaequilateralia, latere breviore subobtuso, 7–10 cm. longa 3–4.5 cm. lata e 2 tertiis inferiori-

bus pinnatinervia, nervis 4+5, in sicco opaca brunnescentia, subtus microscopice nigro-punctulata, petiolo gracili 10 mm. longo exalato; spicae fructiferae 15–20 mm. longae 5 mm. crassae, juvenes longi-acuminatae, pedunculo patente filiformi 10 mm. longo; bracteae crescenticae; baccae globosae, stigmatibus brevibus stylum terminantibus.

Loreto: Yurimaguas, edge of forest, 155–210 meters, *Llewelyn Williams 3861* (herb. Field Mus. No. 623,840, type).

Piper neglectum Trelease, sp. nov.

Frutex glaber; folia elliptico-lanceolata vel lanceolato-ovata subabrupte acuminata basi acuta vel in foliis latioribus obtusa 9–14 cm. longa 4–6 cm. lata ubique pinnatinervia vulgo glandulosо-granulosa, petiolo 1 cm. longo et exalato vel in foliis latioribus 2–3 cm. longo et alato; spicae leviter curvae 30 mm. longae 5–8 mm. crassae obtusae, pedunculo 5–10 mm. longo; baccae globosae, stylo gracili, stigmatibus 3 patentibus.

San Martín: Tocache, Río Huallaga, *Poeppig D1949* (type in herb. Vienna); also in 1832 and 1833.—Huánuco: Cochero, *Poeppig* in 1829.

Piper nuncupatum Trelease, sp. nov.

Frutex nodosus glaber 3–4-metralis, internodiis superioribus brevibus gracilibus; folia lanceolato-elliptica falcato-acuminata basi fere aequilaterali acuta 12–14 cm. longa 5–7 cm. lata e tertio inferiore pinnatinervia, nervis 3–4×2, in sicco tenuia venulosa, petiolo 5 mm. longo; inflorescentia non visa.

Junín: Yapas, Pichis Trail, 1,350–1,600 meters, *Killip & Smith 25577* (type in U. S. Nat. Herb.).

Piper obesum Vahl, Enum. 1: 321. 1804. *P. scabrum* R. & P. Fl. 1: 34. *pl. 55.* 1798, non *P. scabrum* Lam. *Artanthe obesa* Miq. Syst. 470. 1844.

A scabrous shrub; leaves subelliptic, acuminate, subacute at the base, 8 cm. long, 4 cm. wide, rugose; petiole scarcely 10 mm. long; spikes 25 mm. long, 5 mm. thick; peduncle 5 mm. long.

Huánuco: Huassahuassi, *Ruiz & Pavón*, type.

Piper obliquum R. & P. Fl. 1: 37. *pl. 63.* 1798. *Steffensia obliqua* Kunth, Linnaea 13: 663. 1839. *Artanthe magnifica* Miq. Syst. 391. 1844; Ill. Piper. *pl. 71. P. Ruizianum* D. Dietr. Syn. Pl. 1: 118. 1839.

A shrub, glabrous or glabrate except for the typically puberulent nerves beneath; leaves broadly ovate, subacute, obliquely cordate with the larger side round-auricled and equaling the petiole, 29–39 cm. long, 14–26 cm. wide, subpinnately nerved from below the upper third, the nerves about 7+9; petiole 4–6 cm. long, equally long on both sides; spikes 300–500 mm. long, 5 mm. thick; peduncle 3–4 cm. long.

Huánuco: Cochero, *Ruiz & Pavón*, type; *Dombey; Poeppig.*—Loreto(?): Mainas, *Poeppig 13.*—Without locality: *Mathews 1699.*

Piper oblongatifolium Trelease, sp. nov.

Frutex nodosus glaber 3-metralis, internodiis floriferis brevibus gracilibus prope nodos minute granulosis; folia oblonga anguste acuminata basi paullo inaequilateralia, latere breviore obtuso, 12–15 cm. longa 4–5.5 cm. lata e dimidio inferiore pinnatinervia, nervis 5×2, in sicco tenuia, subtus paullo pallidiora, petiolo 5+2 mm. longo ut basi costae papilloso non vaginante; spicae juvenes 60 mm. longae 2 mm. crassae, pedunculo 10–15 longo; bracteae triangulari-subpeltatae.

Loreto: Valley of Río Marañón, 150 meters, *Killip & Smith 29153* (type in U. S. Nat. Herb.).

Piper oblongatilimbum Trelease, sp. nov.

Frutex glaber 1–2-metralis, internodiis floriferis gracilibus modice elongatis; folia lanceolato-oblonga acuminata basi inaequilaterali obtusa vel basi ipsa subacuta 12–15 cm. longa 4 cm. lata e 2 tertiis inferioribus pinnatinervia, nervis 4–5×2, in sicco tenuia, petiolo vix 5 mm. longo vaginante; spicae 20 mm. longae 5 mm. crassae caudatae nigrescentes, pedunculo vix 5 mm. longo; baccae globosae, stigmatibus sessilibus.

Loreto: Yurimaguas to Balsapuerto, 135–150 meters, *Killip & Smith 28237* (type in U. S. Nat. Herb.).

Piper oblongatum Opiz in Presl, Rel. Haenk. 153. 1830. *Carpunya oblongata* Presl, Epim. Bot. 229. 1849. *Artanthe oblongata* Miq. Syst. 535. 1844.

A glabrous shrub; leaves lanceolate or lance-ovate, gradually subacuminate, inequilaterally rounded at the base, 15–16 cm. long, 5–7 cm. wide, pinnately nerved from below the middle, the nerves 4×2, coriaceous; petiole 10 mm. long; spikes 125 mm. long, 2 mm. thick; bracts subpeltate, brown-hairy; stigmas sessile, filiform.

Huánuco: Huánuco mountains, *Haenke*, type.

Piper obovatifolium Trelease, sp. nov.

Arbor 3–5-metralis nervis folii subtus obscure puberulis exceptis glabra, internodiis floriferis subelongatis crassis; folia elliptico-obovata obtusa basi inaequilaterali cordata, uno latere subauriculate prolongato, 30–33 cm. longa 18–21 cm. lata e 2 tertiis inferioribus subpinnatinervia, nervis 6+7, in sicco tenuia lucida, petiolo 5–7+ 1.5–2 cm. longo firme crispo-alato; spicae juvenes 2 mm. crassae, pedunculo recurvo 2 cm. longo; bracteae rotundo-subpeltatae.

Loreto: Santa Rosa, 135 meters, *Killip & Smith 28980* (type in U. S. Nat. Herb.). Yurimaguas to Balsapuerto, 135–150 meters, *Killip & Smith 28096*.

Piper obovatum R. & P. Fl. 1: 36. *pl. 53*. 1798. *Schilleria obovata* Kunth, Linnaea 13: 686. 1839. *Artanthe obovata* Miq. Syst. 508. 1844.

A glabrous or locally obscurely puberulent shrub; leaves oblanceolate, acuminate, acute-based, 11–12 cm. long, 3–4 cm. wide, pinnately nerved throughout; petiole 10–15 mm. long; spikes in fruit 30 mm. long, 10 mm. thick, gently curved; peduncle scarcely 10 mm. long, recurved; bracts triangular-subpeltate; berries subglobose, wrinkled; stigmas sessile. Neg. 8419.

Huánuco: Cochero and Chinchao, *Ruiz & Pavón*, type.

The Ruiz specimen in the Willdenow Herbarium, with young spikes, is accompanied by detached long spikes (as figured); but the Ruiz specimen in the general herbarium at Berlin, though in full fruit, possesses the short, thick spikes here described.

Peperomia occultum Trelease, sp. nov.

Frutex folia *P. oculatispico* similis nodosus, internodiis brevibus modice crassis flavescenti-hispidis; folia lanceolata acuminata basi paullo inaequilaterali uno latere basis angustatae obtusa 12 cm. longa 5 cm. lata e dimidio inferiore vel paullo altius pinnatinervia, nervis circa 6+5, plus minusve rugosa supra breviter scabrida et serius minute granuloso-asperata nervis hispidis, subtus ad nervos hispida, petiolo 8–10+2 mm. longo flavescenti-hispido; spicae 90 mm. longae 3 mm. crassae, pedunculo 6 mm. longo scabro; bracteae rotundo-subpeltatae.

Loreto: Near Iquitos, 120 meters, *Llewelyn Williams 1406* (herb. Field Mus. No. 617,357, type). "Cordoncillo."

Piper oculatispicum Trelease, sp. nov.

Frutex plus minusve nodosus, internodiis floriferis modice brevibus et gracilibus flavescenti-hispidis; folia lanceolata acuminata basi subinaequilaterali obtusa 11–14 cm. longa 4–5 cm. lata e dimidio inferiore pinnatinervia, nervis 6×2, granuloso-scabra, subtus ad nervos ferrugineo-hispida, petiolo 5+2 mm. longo ferrugineo-hispido; spicae 75 mm. longae 3 mm. crassae, pedunculo 5 mm. longo scabro; bracteae rotundo-subpeltatae, centro brunneo, margine pallido.

Loreto: Iquitos, 120 meters, *Llewelyn Williams 7954* (herb. Field Mus. No. 629,718, type). "Cordoncillo."

Piper offensum Trelease, sp. nov.

Frutex 2–3-metralis, internodiis superioribus subgracilibus brevibus subvilloso-hirsutis; folia elliptica acuminata basi acuta 17 cm. longa 7–8.5 cm. lata e dimidio inferiore vel paullo altius pinnatinervia, nervis 5–6×2, granuloso-scabra, subtus ad nervos longihirsuta, petiolo vix 10 mm. longo piloso; spicae juvenes parvae.

Loreto: Balsapuerto, 150–350 meters, *Killip & Smith 28426* (type in U. S. Nat. Herb.).

Piper ollantaitambanum Trelease, sp. nov.

Frutex nodosus, internodiis floriferis modice gracilibus breviter adpresse griseo-pubescentibus; folia late lanceolata subacuminata basi inaequilaterali acuta vel vulgo uno latere rotundata 10–11 cm. longa 3.5–4 cm. lata e dimidio inferiore pinnatinervia, nervis circa 6+5, subrugosa, supra viridia minute scabra lepidota, subtus praesertim ad nervos puberula et breviter adpresso-pubescentia, petiolo 7–10+2 mm. longo breviter adpresso-canescente; spicae oppositifoliae fere rectae vel vulgo conspicue curvae 70–90 mm. longae 4 mm. crassae, pedunculo 10 mm. longo breviter canescente; bracteae rotundo-subpeltatae brunnescenti-tomentulosae.

Cuzco: Ollantaitambo, 3,000 meters, *Cook & Gilbert 558* (type in U. S. Nat. Herb.).

Piper Opizianum Fuernr. Flora, 12: 228. 1829. *P. arcuatum* Opiz in Presl, Rel. Haenk. 151. 1831, non Blume. *P. falcatum* A. Dietr. Syn. 1: 137. 1831.

A shrub; young parts sparsely crisp-pubescent; twigs granular; leaves lanceolate, acutely attenuate at both ends, 15–16 cm. long, 5–7 cm. wide, pinnately nerved from the lower half, the nerves

5×2, ciliate; petiole 15 mm. long, not winged; spikes U-shaped, 100 mm. long, 2 mm. thick; peduncle 10 mm. long.

Type from mountains of Peru, *Haenke* in herb. Prague.

Piper Opizii (Kunth) Steud. Nom. Bot. ed. 2. 342. 1840. *Steffensia Opizii* Kunth, Linnaea 13: 641. 1839. *Artanthe Opizii* Miq. Syst. 440. 1844. *P. asperifolium* Opiz in Presl, Rel. Haenk. 153. 1831, non R. & P.

A nodose shrub; internodes short, slender, retrorsely scabrid, granular in age; leaves elliptic-ovate, short-acuminate, shallowly cordate or cordate-truncate, 8–11 cm. long, 5–6 cm. wide, pinnately nerved from the lower half, the nerves 4–5×2, very scabrous above, with hispid nerves beneath; petiole 10–15 mm. long, scabrous, not winged; spikes 40 mm. long, 3–5 mm. thick, blunt; peduncle 15 mm. long, scabrid; bracts transversely subpeltate; stigmas 3, sessile.

Huánuco: Huánuco mountains, *Haenke*.

Piper ornithorhynchum Trelease, sp. nov.

Frutex vel arbuscula 3–5-metralis, internodiis floriferis modice gracilibus et elongatis ferrugineo-araneoso-villosis; folia rotundo-ovata acuminata basi truncata vel breviter concava abrupte in petiolum contracta 20–23 cm. longa 14–16 cm. lata e tertio inferiore submultiplinervia, nervis 6–7×2, subtus sparse stellato-pubescentia ad nervos ferrugineo-araneosa, petiolo 2–4 cm. longo vaginante subvilloso; spicae 100 mm. longae 5–7 mm. crassae curvae, apice sterili, ferrugineo-tomentosae, pedunculo 7–12 mm. longo 3 mm. crasso ferrugineo-pubescente; bracteae rotundo-subpeltatae pilosae; stigmata majuscula stylum distinctum terminantia.

Ayacucho: Carrapa, 1,500 meters, *Killip & Smith 22334* (type in U. S. Nat. Herb.), *23221*.

Piper ostii Trelease, sp. nov.

Frutex humilis dense ramosus glaber subnodosus, internodiis superioribus brevibus gracillimis; folia lanceolata sensim longissime acuminata basi aequilaterali acuta, uno latere interdum distincte breviore, 11–12 cm. longa 2–3.5 cm. lata e tertio inferiore pinnati-nervia, nervis gracilibus 4×2, petiolo 10 mm. vel 10+2–3 mm. longo gracili; spicae 30–40 mm. longae 2 mm. crassae, pedunculo filiformi 10 mm. longo.

Loreto: Mouth of Río Santiago, 200 meters, *Ynes Mexia 6152* (type in herb. Univ. Calif.).

Piper ovantherum C. DC. Notizbl. Bot. Gart. Berlin 7: 491. 1917.

A shrub, glabrous except that the upper part of the peduncle is retrorsely hirtellous; leaves ovate, acuminate, subtruncate at the base but abruptly narrowed to the petiole, with one side slightly shorter, 12–15 cm. wide, 21–23 cm. long, pinnately nerved from the lower half, the nerves 5×2; petiole 20+5 mm. long, winged; spikes 80–110 mm. long, 3–5 mm. thick; peduncle 10 mm. long; bracts triangular-subpeltate, ciliate; berries round, with a nearly equilong style; stigmas 3, slender, recurving.

Brazil: Seringal São Francisco, Rio Acre, *Ule 9279*, type; *9281*. —Loreto: Río Marañón, *Tessmann 3862*.

Piper paganicum Trelease, sp. nov.

Frutex 2–3-metralis nodosus, internodiis floriferis brevibus gracilibus transiente hirtellis plus minusve pallido-granulosis; folia subovato-elliptica acuminata basi rotundata, uno latere paullo breviore, 10–12 cm. longa 5.5–6 cm. lata e dimidio inferiore pinnatinervia, nervis 5×2, in sicco viridia lucida subrugosa, subtus ad nervos adpresso-pubescentia, petiolo 10 vel 8+2 mm. longo inferne vaginante subhirtello; spicae 45–65 mm. longae 3 mm. crassae, pedunculo 10 mm. longo glabrato; bracteae rotundo-subpeltatae ciliolatae.

Loreto: Iquitos, 100 meters, *Killip & Smith 27432* (type in U. S. Nat. Herb.).

Piper pallididorsum Trelease, sp. nov.

Frutex glaber 2-metralis, internodiis floriferis mediocribus; folia subelliptica obtuso-subacuminata basi inaequilaterali cordata, latere majore subauriculate producto et petiolum aequante, 20 cm. longa 15 cm. lata, e dimidio inferiore vel paullo altius subpinnatinervia, nervis circa 6+7, subfirma, supra lucida, subtus opaca pallida, petiolo 5+1 cm. longo alato; spicae 360 mm. longae (normales?) 7 mm. crassae versus basin steriles, pedunculo 15–20 mm. longo recurvo; bracteae lunulato-subpeltatae ciliatae; baccae cubicae glabrae, stigmatibus 3 sessilibus.

Junín: Schunke Hacienda, La Merced, 1,300 meters, *Macbride 5801* (herb. Field Mus. No. 536,830, type); inflorescences pendent; leaves whitish beneath when fresh.

Piper paludosum C. DC. in DC. Prodr. 16, pt. 1: 283. 1869.

A black-glandular-granular shrub, glabrous except for the slightly velvety twigs; leaves elliptic-subovate, acuminate, slightly

inequilateral at the base and cordulate, 11 cm. long, 4.5 cm. wide, pinnately nerved from below the upper third, the nerves 3–4×2, the petiole 5 mm. long; young spikes 15 mm. long, 2 mm. thick, cuspidate; peduncle filiform, 15 mm. long; bracts transversely subpeltate, ciliate.

Loreto: Mainas, Yurimaguas, *Poeppig*, type.

Piper papillipetiolatum Trelease, sp. nov.

Frutex gracilis metralis nervis folii subtus obscure adpresso-pubescentibus exceptis glaber, caulibus ex parte praesertim prope nodos pallido-granulosis; folia lanceolata acute falcato-acuminata basi subaequilaterali obtusa vel uno latere paullo longiore, 11–12 cm. longa 4–5 cm. lata infra medium pinnatinervia, nervis 4×2, in sicco tenuia, petiolo 5–10 mm. longo papilloso; inflorescentia non visa.

Loreto: Iquitos, 100 meters, *Killip & Smith 27407* (type in U. S. Nat. Herb.).

Piper paraguassuanum C. DC. Notizbl. Bot. Gart. Berlin 7: 489. 1917.

A transiently crisp-pubescent shrub; leaves glabrous above, lance-ovate, gradually acute, acute-based, 15 cm. long, 5.5 cm. wide, pinnately nerved from the lower half, the nerves 4–5×2; petiole 10 mm. long; spikes 65–95 mm. long, 2 mm. thick; peduncle 15 mm. long; bracts smoky-tomentulose; berries compressed from the side; stigmas 3, sessile.

Brazil: Paraguassu, Rio Acre, *Ule 9284*, type. Probably also in adjacent Peru.

Piper paraisense Trelease, sp. nov.

Frutex nodosus, internodiis brevibus crassis transiente crispo-pilosis; folia lanceolato-elliptica 19 cm. longa 6–6.5 cm. lata acute acuminata basi inaequilaterali acuta e dimidio inferiore pinnatinervia, nervis 6+7, in sicco firma obscure rugosa, supra basibus pilorum longorum caducorum grosse granuloso-asperata, subtus ad nervos rigido-subvillosa, petiolo 6+4 mm. longo laxe longipiloso; inflorescentia non visa.

Loreto: Paraíso, Alto Río Itaya, 145 meters, *Llewelyn Williams 3207* (herb. Field Mus. No. 618,571, type).

Piper paralaevigatum Trelease, sp. nov. *P. laevigatum* Auct.; *P. tenue* Auct.

Frutex glaber vel in statu juveni obscure hinc inde papilloso-puberulus; folia lanceolata anguste falcato-acuminata e medio fere cuneatim attenuata ad petiolum, 21–24 cm. longa 7–9.5 cm. lata 3- vel obscure 5-nervia, in sicco viridia nervis albidis, petiolo 10–15 mm. longo vix alato; spicae oppositifoliae graciles 90 mm. longae, pedunculo 15 mm. longo; bracteae subcucullatae; baccae ellipsoideo-oblongae apice contractae, stigmatibus 3 brevibus crassis.

Junín(?): Mainas Alto, *Poeppig 1* (type in herb. Paris).

Piper paranapuranum Trelease, sp. nov.

Frutex 2-metralis diffusus, internodiis superioribus brevibus subgracilibus villosis; folia oblongo-lanceolata vel elliptico-lanceolata acuminata basi obtusa, uno latere paullo breviore, 11–15 cm. longa 3–5 cm. lata e dimidio inferiore pinnatinervia, nervis 4–5×2, supra granuloso-scabra, subtus pallidiora praesertim ad nervos sparse hirsuto-subvillosa, petiolo 5–10 mm. longo subvilloso; spicae 90 mm. longae 3 mm. crassae, pedunculo 5 mm. longo hirsuto; bracteae rotundo-subpeltatae ciliolatae.

Loreto: Río Paraná-pura near Yurimaguas, 180 meters, *Ynes Mexia 6075* (herb. Univ. Calif., type).

Piper parcepilosum Trelease, sp. nov.

Frutex 3–4-metralis, internodiis floriferis brevibus subgracilibus glabris vel ad nodos parce pilosis; folia late ovata acuminata basi rotundata acute ad petiolum contracta 20–23 cm. longa 10–15 cm. lata e tertio inferiore pinnatinervia, in sicco tenuia sed firma, subtus ad nervos sparse breviter villosa, petiolo 25 mm. longo infra medium alato sparse molliter piloso; spicae 90 mm. longae 4 mm. crassae, pedunculo gracili 10 mm. longo glabrescente; bracteae rotundo-subpeltatae, centro fusco, margine brunneo crispo; stigmata sessilia.

Junín: Carpapata, 2,700–3,200 meters, *Killip & Smith 24385* (type in U. S. Nat. Herb.).

Piper parvicordulatum Trelease, sp. nov.

Frutex plus minusve nodosus, internodiis gracilibus elongatis; folia subelliptico-ovata acuminata basi rotundata vel abrupte angustata et supra petiolum cordulata 14–18 cm. longa 8–12 cm. lata e dimidio inferiore vel paullo altius submultiplinervia, nervis longioribus 6–7×2, in sicco tenuia opaca, subtus pallidiora, petiolo gracili 2 cm. longo non vaginante; spicae juvenes 50 mm. longae 3 mm. crassae, pedunculo 10 mm. longo; bracteae crescentico-subpeltatae; stigmata 3 filiformia sessilia.

Junín: Chanchamayo Valley, 1,800 meters, *Carlos Schunke 319* (herb. Field Mus. No. 571,375, type).

Piper patens Opiz in Presl, Rel. Haenk. 153. 1831.

A shrub with gray-hispid or hirsute twigs; leaves elliptic, acuminate, obtuse at the base, 14 cm. long, 7 cm. wide, pinnately nerved from somewhat more than the lower half, the nerves 4–5×2, hairy, and with the upper side scabrous from the bases of fallen hairs; petiole 5 mm. long; spikes as yet very young and small.

Huánuco: Huánuco mountains, *Haenke* in 1790, type.

Piper patentifolium Trelease, sp. nov.

Herba(?), internodiis floriferis gracilibus breviusculis hispide griseo-hirsutis; folia elliptica vel elliptico-ovata et basi rotundata, vel elliptico-subobovata et basi acuta, acute acuminata 15–16 cm. longa 7–8.5 cm. lata e dimidio inferiore pinnatinervia, nervis circa 6×2, tenuia sed rugosa, supra dense granuloso-scabra, subtus ad nervos adscendenti-hirsuta, petiolo 10 vel 5+5 mm. longo hirsuto; spicae oppositifoliae 100 mm. longae 3 mm. crassae acutatae, pedunculo vix 5 mm. longo plus minusve hispido; bracteae parvae rotundo-subpeltatae ciliolatae.

Junín: Hacienda Chalhuapuquio, *Stevens 136* (type), *148*.

Piper paucartamboanum Trelease, sp. nov.

Frutex gracilis diffusus griseus metralis nodosus, internodiis floriferis brevibus gracilibus strigoso-pilosis; folia lanceolata acute acuminata basi inaequilateralia, uno vel ambobus lateribus rotundatis, 6.5–10 cm. longa 2.5–3.5 cm. lata, supra scabrida, subtus ad nervos venasque prominentes hirsuta, petiolo 5–10 mm. longo inferne vaginante; spicae 50 mm. longae 3 mm. crassae, pedunculo 5 mm. longo hispido; bracteae majusculae triangulari-subpeltatae; baccae oblongae truncatae, stigmatibus parvis sessilibus.

Junín: Near Perené Bridge, Río Paucartambo Valley, 700 meters, *Killip & Smith 25388* (type in U. S. Nat. Herb.).

Piper paulianifolium Trelease, nom. nov. *Artanthe Haenkeana* Miq. Linnaea 20: 145. 1847, non *P. Haenkeanum* Opiz. *P. paulianum* Auct.

A shrub, glabrous; leaves elliptic-subovate, acuminate, rounded at the base, with one side shorter, 22 cm. long, 12 cm. wide, submultiple-nerved from the lower half, the nerves about 6×2, minutely cellular-papillate beneath; spikes elongate, 4 mm. thick, the peduncle

5 mm. long; bracts subtriangular-subpeltate, the broad yellow margin ciliate; berries rounded; stigmas 3, sessile.

Type collected in Peru(?) by *Haenke*.

Piper Pavoni (Miq.) C. DC. in DC. Prodr. 16, pt. 1: 294. 1869. *Artanthe Pavoni* Miq. Lond. Journ. Bot. 4: 45. 1866.

A shrub, more or less persistently yellow-subvillous or crisp-hairy except for the nearly glabrous upper side of the leaves; leaves broadly ovate, acuminate, subtruncate at the base or shallowly cordate, 13–30 cm. long, 9–17 cm. wide, submultiple-nerved from the lower third, the nerves about 5×2; petiole 2–3 cm. long, narrowly winged; spikes 90–100 mm. long, 3–5 mm. thick; peduncle 10 mm. long; bracts triangular-subpeltate; ovary round, with a deciduous style; stigmas spreading. Neg. 11014.

Type from Quebrada of Panuahuanuca, *Mathews 793*. Peruvian Andes, *Dombey 936*.—Junín: Huacapistana, *Stevens 179*(?).

Piper pebasense Trelease, sp. nov.

Arbuscula glabra nodosa, internodiis floriferis brevibus modice gracilibus; folia late elliptico-oblanceolata sensim acute acuminata basi rotundata 26 cm. longa 10 cm. lata ubique pinnatinervia, in sicco tenuia brunnescentia, petiolo 5+15 mm. longo alato; spicae 150 mm. longae et ultra 3 mm. crassae, pedunculo crasso 5 mm. longo; bracteae triangulari-subpeltatae ferrugineo-ciliatae; ovarium subglobosum, stigmatibus 3 parvis sessilibus.

Loreto: Pebas on the Amazon River, in forest, *Llewelyn Williams 1746* (herb. Field Mus. No. 608,248, type).

Piper Peltobryon C. DC. in DC. Prodr. 16, pt. 1: 259. 1869. *Peltobryon attenuatum* Klotzsch in Miq. Syst. 371. 1844, non *Piper attenuatum* Auct. pl.

A glabrous, glandular-granular shrub; leaves elliptic, equally acute at both ends, 5–6 cm. wide, 13 cm. long, pinnately nerved from below the upper third, the petiole 10 mm. long; spikes about 15 mm. long, 10 mm. thick; peduncle barely 10 mm. long; berries round, with a rather slender style; stigma short.

Type from Peru, *Meyen 150*.

Piper perareolatum C. DC. Bot. Jahrb. 40: 246. 1908.

A resin-scented, yellowish-villous shrub or small tree, 3–6 meters high; leaves round-ovate, acuminate, subequilaterally subtruncate at the base or cordate, with the margin abruptly contracted to the

petiole, 18–21 cm. long, 15–16 cm. wide, submultiple-nerved from the lower third, the nerves about 5×2, bullulate-lacunose, glabrous above, the petiole 3 cm. long; spikes curved, 5–8 cm. thick, 250–300 mm. long, or larger; peduncle thick, 2 cm. long, pale-granular. Neg. 11016.

Junín: Huacapistana, *Weberbauer 2195*, type.—Huánuco: Muña, 2,400 meters, *4340*.

Piper perenense Trelease, sp. nov.

Frutex subcanescens 3–4-metralis, internodiis floriferis brevibus gracilibus subcrispe pubescentibus; folia lanceolata vel elliptica anguste falcato-acuminata basi subaequilaterali acuta 14–16 cm. longa 5.5–6.5 cm. lata e dimidio inferiore pinnatinervia, nervis 5–6×2, supra basibus pilorum fugacium granuloso-scabra, subtus ad nervos breviter hirsuta, petiolo vix 10 mm. longo exalato; spicae curvae, juvenes 20 mm. longae 2 mm. crassae, pedunculo scabrido 3 mm. longo; bracteae rotundo-subpeltatae.

Junín: Colonia Perené, 600 meters, *Killip & Smith 25108* (type in U. S. Nat. Herb.). Puerto Bermúdez, *Killip & Smith 26442*.

Piper perenense var. **cupulifolium** Trelease, var. nov.

Margine folii basi in cupulam conicam 5 mm. profundam connato.

Junín: La Merced, 700 meters, *Killip & Smith 23698* (U. S. Nat. Herb., type), growing with the normal form of the species.

Piper pernigricans Trelease, sp. nov.

Frutex 3-metralis glaber glanduloso-granulosus nigrescens, internodiis floriferis gracilibus brevibus; folia lanceolata vel suboblonga sensim acuminata basi aequilaterali acuta 12–15 cm. longa 3.5–4 cm. lata ubique pinnatinervia, nervis circa 10×2, nervis e dimidio inferiore magis elongatis, in sicco lucida, petiolo 10 mm. longo inferne alato; spicae juvenes 20 mm. longae 1 mm. crassae subrectae.

Loreto: Mishuyacu, 100 meters, *Killip & Smith 29976* (type in U. S. Nat. Herb.).

Piper perpunctulatum Trelease, sp. nov.

Frutex glaber 3-metralis, internodiis floriferis gracilibus brevibus; folia elliptico-lanceolata acuminata basi inaequilateralia, latere longiore subabrupte acuto, 14 cm. longa 7–8 cm. lata e dimidio inferiore submultiplinervia, nervis 4+5, in sicco tenuia subtus minute glanduloso-punctata, petiolo 7+3 mm. longo non vaginante; spicae

60 mm. longae 3 mm. crassae, pedunculo 10 mm. longo; bracteae rotundo-subpeltatae ciliolatae.

Loreto: Yurimaguas to Balsapuerto, 135–150 meters, *Killip & Smith 28090* (type in U. S. Nat. Herb.), *2833*. Yurimaguas, *Killip & Smith 28203*.

Piper perpurgatum Trelease, sp. nov.

Frutex metralis, internodiis floriferis brevibus subgracilibus primo crispo-pubescentibus glabrescentibus; folia elliptico-lanceolata acuminata basi acuta 10–14 cm. longa 3–5 cm. lata ubique pinnatinervia, nervis circa 10×2, supra lepidoto-punctulata, subtus ad nervos crispo-pubescentia, petiolo 5–10 mm. longo, pubescente, longioribus late alatis; spicae patentes 15 mm. longae 4 mm. crassae, pedunculo 5 mm. longo pubescente; bracteae inconspicuae; ovarium subteres depressum vel mucrone protruso terminatum, stigmatibus 3 in mucrone insertis.

Loreto: San Antonio, Río Itaya, 110 meters, *Killip & Smith 29455* (type in U. S. Nat. Herb.), *29414*, *29461*. Soledad, *Killip & Smith 29707*.

Piper peruvianum (Miq.) C. DC. in DC. Prodr. 16, pt. 1: 283. 1869. *Artanthe peruviana* Miq. Lond. Journ. Bot. 4: 461. 1866. *P. pseudo-peruvianum* C. DC. op. cit. 282. *A. peruviana* var. *laevigata* Miq. in herb.

A glandular-granular, glabrous shrub; leaves lance-elliptic, acuminate, acute-based, 16–19 cm. long, 8–10 cm. wide, pinnately nerved from the lower half, the nerves 4–5×2; petiole 10–15 mm. long; spikes 100–120 mm. long, 3 mm. thick; peduncle 10–15 mm. long; bracts triangular-subpeltate; berries quadrate; stigmas sessile.

Junín: Pangoa, *Mathews 1145* (type), *1147*. Mainas, *Poeppig 1037*.—Huánuco: Casapí, *Mathews (1713)*, *1703* in Herb. Bentham.—Loreto: Santa Rosa, *Killip & Smith 28783*, Balsapuerto, *Killip & Smith 28385*.

Piper pervillosum Trelease, sp. nov.

Frutex undique spicis exceptis rubescenti-villosus, internodiis floriferis comparate gracilibus ut videtur elongatis; folia elliptico-obovata obtusa basi inaequilaterali cordata, sinu laterali, lobo majore auriculate producto, 29 cm. longa 12 cm. lata e dimidio inferiore subpinnatinervia, nervis 5×2, nervis supplementariis in auricula dispersis, petiolo 4 cm. longo alato; spicae 90 mm. longae et ultra

4 mm. crassae, pedunculo gracili 3 cm. longo et ultra; bracteae rotundo-subpeltatae.

San Martín: San Roque, in forest, 1,350–1,500 meters, *Llewelyn Williams 6963* (herb. Field Mus. No. 622,979, type).

Piper pervulgatum Trelease, sp. nov.

Frutex 2–3-metralis, internodiis floriferis brevibus subgracilibus adpresso-hispidis; folia subelliptica anguste acute acuminata basi inaequilaterali acuta 11–15 cm. longa 4.5–6 cm. lata e dimidio inferiore pinnatinervia, nervis 5–6×2, supra minute sed conspicue granuloso-scabra, subtus ad nervos incurvo-hispida, petiolo 5+2–3 mm. longo hispido exalato; spicae 90 mm. longae 3 mm. crassae, pedunculo 6 mm. longo scabro; bracteae parvae rotundo-subpeltatae ferrugineo-ciliolatae.

Loreto: Mishuyacu near Iquitos, in clearing, 100 meters, *G. Klug 468* (herb. Field Mus. No. 629,836, type). San Antonio, Río Itaya, 110 meters, *Killip & Smith 29312*. Pebas on the Amazon River, in forest, *Williams 1889, 1594*. "Cordoncillo."

Piper phegophyllum Trelease, sp. nov.

Frutex vel arbuscula 3–5-metralis glabra plus minusve nodosa gracilis, internodiis floriferis gracilibus brevibus; folia elongato-elliptica acuminata basi fere aequilaterali acuta 15–20 cm. longa 6.5–8 cm. lata ubique pinnatinervia nervis gracilibus prominentibus circa 16×2, subtus dense nigro-punctulata, petiolo vix 10 mm. longo exalato; spicae 50–60 mm. longae 2 mm. crassae, pedunculo gracili 7 mm. longo; bracteae rotundo-subpeltatae laceratae glabrae.

Junín: Puerto Bermúdez, 375 meters, *Killip & Smith 26479* (type in U. S. Nat. Herb.).

Piper phthinotrichon (Miq.) C. DC. in DC. Prodr. 16, pt. 1: 298. 1869. *Artanthe phthinotricha* Miq. Syst. 527. 1844; Ill. Piper. *pl. 90*.

A delicate, glabrous or transiently puberulent, glandular-granular shrub; leaves elliptic-lanceolate, sharp-acuminate, subacute at the base, 6 cm. long, 2–3 cm. wide, pinnately nerved throughout; petiole 5 mm. long, winged; spikes 15 mm. long, 3 mm. thick; peduncle 10 mm. long, filiform; bracts cucullate; berries globose; stigmas 3, sessile.

Loreto: Mainas, *Poeppig 2289* (type), *2283*. Yurimaguas, *Killip & Smith 27619*. Lower Río Huallaga, *Killip & Smith 29260*.—

Ayacucho: El Puquio, *Poeppig D1736*.—Huánuco: Cochero, *Poeppig*. —Junín: Chanchamayo Valley, *Schunke 404*.

Piper phthinotrichon var. **san-roqueanum** Trelease, var. nov.

Frutex humilis nodosus glaber granulosus, internodiis floriferis brevissimis gracilibus; folia lanceolata vel lanceolato-ovata subacuminata basi subabrupte acuta 4.5–5.5 cm. longa 2 cm. lata e dimidio inferiore pinnatinervia, nervis longioribus 4×2 sursum con brevioribus junctis, petiolo vix 5 mm. longo caduce alato; spicae fructiferae 20 mm. longae 5 mm. crassae breviter caudatae, pedunculo vix 5 mm. longo in statu fructifero refracto; bracteae crescenticae; baccae globosae, stigmatibus fere sessilibus vel in mucrone brevi insertis.

San Martín: San Roque, in forest, 1,350–1,500 meters, *Llewelyn Williams 7218* (herb. Field Mus. No. 624,599, type).

Piper pichisense Trelease, sp. nov.

Frutex 2-metralis, internodiis floriferis brevibus crassiusculis dense flavide incurvo-pilosis; folia elliptica abrupte acuminata basi fere aequilaterali cordata 14–16 cm. longa 7–8 cm. lata e dimidio inferiore submultiplinervia, nervis 5–6×2, in sicco tenuia, supra pilis crispis flavidis pilosa, subtus ad nervos sparse hirsuto-villosa, petiolo 5–10 mm. longo flavo-barbato; spicae juveniles 50 mm. longae 4 mm. crassae, pedunculo 15–20 mm. longo plus minusve crispo-hirtello; bracteae triangulari-subpeltatae ciliolatae.

Junín: San Nicolás, Pichis Trail, 1,100 meters, *Killip & Smith 26012* (type in U. S. Nat. Herb.).

Piper planipes Trelease, sp. nov.

Frutex glaber 3-metralis, internodiis floriferis modice gracilibus et elongatis; folia ovata acuminata basi rotundata vel subtruncata supra petiolum minute cordulata 15 cm. longa 8–10 cm. lata e dimidio inferiore submultiplinervia, nervis 4×2, in sicco caerulescentia, petiolo 10–15 mm. longo supra late sulcato; spicae 60 mm. longae 3 mm. crassae, pedunculo gracili 15 mm. longo; baccae obpyramidales apice subacutae; stigmata 3 minuta sessilia.

Junín: Colonia Perené, 680 meters, *Killip & Smith 24928* (type in U. S. Nat. Herb.).

Piper planipes var. **amplum** Trelease, var. nov.

Frutex 3–4-metralis; folia interdum basi breviter cordata 17–22 cm. longa 10 cm. lata, petiolo 2–4 cm. longo basi infima carnoso-

verrucoso; spicae 25–30 mm. longae 4 mm. crassae, pedunculo 7 mm. longo; bracteae crescenticae; baccae obconicae apice plus minusve apicatae, stigmatibus minutis sessilibus.

Junín: Schunke Hacienda, La Merced, 1,400–1,700 meters, *Killip & Smith 24721* (type in U. S. Nat. Herb.).

Piper pleninervosum Trelease, sp. nov.

Frutex nodosus 2–3-metralis nervis folii subtus adpresso-pubescentibus exceptis glaber, ramulis petiolisque papillosis vel granulosis; folia lanceolata acuminata basi subacuta vel uno latere paullo breviora et obtusa 9–12 cm. longa 3–4 cm. lata e 2 tertiis inferioribus pinnatinervia, nervis 5×2, petiolo vix 5 mm. longo non vaginante; spicae 90 mm. longae 2–3 mm. crassae, pedunculo 5–10 mm. longo; bracteae rotundo-subpeltatae ciliolatae; baccae teretes, stigmatibus minutis sessilibus.

Loreto: Puerto Arturo, 135 meters, *Killip & Smith 27875* (type in U. S. Nat. Herb.).

Piper politaereum Trelease, sp. nov.

Frutex vel arbuscula glabra nodosa 3–5-metralis, internodiis floriferis breviusculis gracilibus; folia elliptica vel paullo subovata anguste acuminata basi inaequilaterali acuta 12–16 cm. longa 5–8 cm. lata e dimidio inferiore pinnatinervia, nervis 5×2, in sicco tenuia fusca, subtus minute granulosa lucida, petiolo 5+1–4 mm. longo exalato; spicae juvenes 35 mm. longae 2 mm. crassae, pedunculo 5 mm. longo; bracteae parvae rotundo-subpeltatae ciliolatae.

Junín: Schunke Hacienda, San Ramón, 1,400–1,700 meters, *Killip & Smith 24545* (type in U. S. Nat. Herb.), *24553*. La Merced, *Killip & Smith 23905*.

Piper politaereum var. **elongatum** Trelease, var. nov.

Frutex 3-metralis; folia lanceolato-elliptica 22 cm. longa 7 cm. lata, subtus ad nervos obscure adpresso-pubescentia, nervis superioribus separatis vel ab aliis remotis.

Loreto: Soledad, 110 meters, *Killip & Smith 29587* (type in U. S. Nat. Herb.).

Piper politaereum var. **mucronatum** Trelease, var. nov.

Frutex 3–4-metralis glaber; folia elliptica 22 cm. longa 8–9 cm. lata; spicae juvenes 55 mm. longae 2 mm. crassae cuspidatae, pedunculo gracili 6–8 mm. longo.

Loreto: San Antonio, Río Itaya, 110 meters, *Killip & Smith 29460* (type in U. S. Nat. Herb.).

Piper politum C. DC. Ann. Cons. Jard. Genève 21: 237. 1920.

A shrub, glabrous except for obscure puberulence of the twigs; leaves lance-oblong, short-acuminate, almost equilaterally acute at the base, 12–13 cm. long, 3.5–4 cm. wide, pinnately nerved from below the upper third, the nerves 4–5×2, glossy; petiole 10–15 mm. long; spikes gently curved, 50 mm. long, 3 mm. thick; peduncle 5–10 mm. long; bracts long, black with a narrow pale margin; berries depressed-globose; stigmas 3, sessile. Neg. 25041.

San Martín: Tarapoto, *Spruce 4137*, type.—Loreto: Mishuyacu, *Killip & Smith 29976*.

Piper politum var. **pallidibracteum** Trelease, var. nov.

Folia 13 cm. longa 3.5 cm. lata; spicae 6.5 mm. longae 3 mm. crassae, pedunculo 10 mm. longo; bracteae pallidae.

San Martín: San Roque, 1,350–1,500 meters, *Llewelyn Williams 7639* (herb. Field Mus. No. 629,703, type). "Cordoncillo."

Piper ponganum Trelease, sp. nov.

Frutex humilis diffusus vix frutescens, internodiis floriferis 3–4 mm. crassis rigide fulvo-villosis; folia elliptica acuminata basi cordata 15 cm. longa 7–8 cm. lata e dimidio inferiore pinnatinervia, nervis 5–7×2, subtus ad nervos laxe villosa, petiolo 1–2 cm. longo vaginante plus minusve villoso; spicae 25–30 mm. longae 5 mm. crassae cuspide puberulo 10 mm. longo 1 mm. crasso terminatae, pedunculo crasso 5 mm. longo villoso; bracteae crescenticae ciliatae; ovarium obconicum, stylo longo filiformi, stigmatibus 3 recurvis.

Loreto: Pongo de Manseriche, 200 meters, *Ynes Mexia 6123* (herb. Univ. Calif., type).

Piper pontis Trelease, sp. nov.

Arbuscula 4–5-metralis, internodiis floriferis gracilibus modice brevibus fere glabris; folia lanceolata et sensim acuminata vel subovato-elliptica et subabrupte acuminata basi subaequilaterali obtusa vel uno latere majora et acuta 8.5–12 cm. longa 4–5 cm. lata e dimidio inferiore pinnatinervia, nervis 4×2, supra microscopice granuloso-asperata sed in statu adulto laevia, viridia plus minusve rugosa, subtus ad nervos obscure adpresso-pubescentia, petiolo 10 mm. longo exalato; spicae juvenes 30 mm. longae 2 mm. crassae acutatae, pedunculo 5 mm. longo; bracteae rotundo-subpeltatae.

Junín: Near Perené Bridge, Río Paucartambo Valley, 700 meters, *Killip & Smith 25294* (type in U. S. Nat. Herb.).

Piper portalense Trelease, sp. nov.

Arbuscula 3–5-metralis nodosa, internodiis floriferis brevibus gracilibus transiente plus minusve crispo-pubescentibus et pallido-granulosa; folia lanceolato-elliptica anguste acuminata basi inaequilateralia, latere breviore rotundato, 12–16 cm. longa 4–6 cm. lata e dimidio inferiore pinnatinervia, nervis 5×2, subtus pallidiora ad nervos griseos adpresso-pubescentia, petiolo 8+2 mm. longo crispo-pubescente non vaginante; spicae 100 mm. longae 2–3 mm. crassae, pedunculo 8 mm. longo glabrato; bracteae rotundo-subpeltatae ciliatae; baccae teretes, stigmatibus sessilibus.

Loreto: Portal, lower Río Huallaga, 135 meters, *Killip & Smith 29258* (type in U. S. Nat. Herb.).

Piper porveniricola Trelease, sp. nov.

Frutex 3-metralis, internodiis floriferis brevibus gracilibus subtomentoso-hispidis; folia lanceolata sensim longiacuta basi inaequilaterali acuta 15 cm. longa 5 cm. lata fere ubique pinnatinervia, nervis longioribus 6×2, venosa sed tenuia, supra granuloso-scabra, subtus ad nervos adscendenti-strigosa, petiolo 5+5 mm. longo; spicae juveniles 15 mm. longae 2 mm. crassae obtusae, pedunculo vix 5 mm. longo; bracteae rotundo-subpeltatae.

Junín: Porvenir, Pichis Trail, 1,500–1,900 meters, *Killip & Smith 25940* (type in U. S. Nat. Herb.).

Piper positum Trelease, sp. nov.

Frutex 3-metralis nodosus glaber, internodiis floriferis brevibus crassis fistulosis; folia elliptica subacuminata basi subaequilaterali acuta 16–17 cm. longa 7–8 cm. lata ubique pinnatinervia, nervis circa 8×2, in sicco firmo-papyracea sublucida subtus nigro-punctulata, petiolo 10–15 mm. longo exalato; spicae leviter curvae, floriferae 40 mm. longae 2 mm. crassae, pedunculo gracili 10 mm. longo; bracteae rotundo-subpeltatae ciliatae, stigmatibus sessilibus.

Loreto: Portal, Río Huallaga, 135 meters, *Killip & Smith 29256* (type in U. S. Nat. Herb.).

Piper posusanum Trelease, sp. nov.

Frutex compactus 1.5 m. altus nodosus, internodiis floriferis brevibus gracilibus pilis brevibus retrorsis adpressis canescentibus; folia lanceolata subacuminate attenuata basi subaequali subacuta parva 6–8 cm. longa 1.5–2 cm. lata e dimidio inferiore pinnatinervia, nervis 4–5×2, utrinque pilis brevibus adpressis canescentia sed vix

asperata, petiolo brevissimo vix 3 mm. longo ut nervis subtus plus minusve incurvo-hirsuta; spicae oppositifoliae valde curvatae 70 mm. longae 3 mm. crassae, pedunculo vix 10 mm. longo adpresso-canescente; bracteae minutae rotundo-subpeltatae griseae, floribus sessilibus perfectis; stigmata 2–3 minuta sessilia; baccae rubescentes parvae cum rhachi subelongatae.

Huánuco: Posuso, 600 meters, *Macbride 4609* (herb. Field Mus. No. 535,686, type).

Piper pothophyllum Trelease, sp. nov.

Frutex, internodiis floriferis modice gracilibus et longis dense crispo-pubescentibus; folia oblongo-lanceolata vel elliptico-lanceolata sensim acuta basi obliqua, latere longiore cordulato, 25–27 cm. longa 6–9 cm. lata ubique pinnatinervia, nervis circa 20×2, subtus pallidiora ad nervos pubescentia, petiolo 4 cm. longo alato crispo-puberulo; spicae rubrae 50 mm. longae 3 mm. crassae acutatae, pedunculo gracili 4 cm. longo puberulo; bracteae transversae glabrae; ovarium angulatum, stigmatibus 3 subsessilibus.

Loreto: Victoria on the Amazon River, in forest, *Llewelyn Williams 2998* (herb. Field Mus. No. 608,343, type). "Cordoncillo."

Piper praeclarum Trelease, sp. nov.

Frutex vix 1.5 m. altus pilis brevibus intertextis ubique villosus; folia lanceolato-elliptica sensim acuminata basi inaequali obtusa 13–15 cm. longa 5–6 cm. lata e dimidio inferiore pinnatinervia, nervis circa 5×2, petiolo brevissimo 3+3 mm. longo exalato; spicae oppositifoliae valde curvae 60 mm. longae 3 mm. crassae, pedunculo elongato 15–20 mm. longo; bracteae triangulari- vel lunulato-subpeltatae ciliatae, floribus sessilibus perfectis; stigmata 3 brevia sessilia.

Junín: Hacienda Schunke, La Merced, 1,200 meters, in forest, *Macbride 5623* (herb. Field Mus. No. 536,662, type).

Piper procerum Trelease, sp. nov.

Arbor glabra 10–13-metralis; folia rotundato-elliptica obtusa basi inaequilateralia, sinu laterali clauso, latere majore petiolo aequilongo, 31 cm. longa 24 cm. lata e 3 quartis inferioribus subpinnatinervia, nervis 4+5 pluribus supplementariis in auricula dispersis, petiolo 8 cm. longo alato basi verrucoso; spicae 200 mm. longae 3 mm. crassae, pedunculo 15 mm. longo; bracteae rotundo-subpeltatae ciliatae; baccae teretes apice depressae; stigmata 3 sessilia.

Junín: Schunke Hacienda, La Merced, 1,400–1,700 meters, *Killip & Smith 24636* (type in U. S. Nat. Herb.).

Piper propinquum C. DC. Journ. Bot. 4: 167. 1866.

A glabrous, glandular-granular shrub; leaves lance-elliptic, sharp-acuminate, acute-based, 15–17 cm. long, 6–7 cm. wide, submultiple-nerved from the lower half, the nerves 4×2; petiole 10 mm. long; spikes 90 mm. long, 3–4 mm. thick, the peduncle 5–10 mm. long; bracts crescentic-subpeltate, yellow-ciliate; berries globose, with a slender style; stigmas spreading. Negs. 7231, 8421.

San Martín: Tarapoto, *Spruce 4032*, type. San Roque, 1,500 meters, *Williams 7229*.—Junín: Pangoa, *Mathews 1147*. Yapas, *Killip & Smith 25577*. Chanchamayo Valley, *Schunke 488*.

Piper propinquum var. **brevistylum** Trelease, var. nov.

Stylo brevi crasso, stigmatibus latis differt.

Huánuco: Cochero, *Poeppig 1037* (type in herb. Vienna). Tocache, *Poeppig* in 1830.—Without locality; *Poeppig 1337*(?).

Piper propinquum var. **grande** Trelease, var. nov.

Subarborescens; folia 20–25 cm. longa 9–14 cm. lata; spicae juvenes curvae 20 mm. longae 3 mm. crassae, bracteis conspicue brunneo-marginatis, pedunculo 1 cm. longo.

Loreto: Yurimaguas to Balsapuerto, 135–150 meters, *Killip & Smith 28109* (type in U. S. Nat. Herb.). Santa Rosa, *Killip & Smith 28734*. Puerto Arturo, *Killip & Smith 27757*.

Piper pseudobarbatum C. DC. Bot. Jahrb. 40: 249. 1908.

A glabrous, compact shrub; leaves ovate, subacute, rounded at the base or subcordulate, 6–9 cm. long, 3.5–5 cm. wide, pinnately nerved from the lower half, the nerves 3×2; petiole 5 mm. long; spikes 30–40 mm. long, 3 mm. thick; peduncle 5 mm. long; bracts round-subpeltate, ciliolate; stigmas sessile. Neg. 11025.

Ancash: Puccha Valley in thickets along river, 2,700 meters, *Weberbauer 3738*, type.

Piper pseudo-callosum Trelease, sp. nov.

Frutex 2.5 m. altus subnodosus, internodiis floriferis longis gracilibus glabris; folia lanceolato-oblonga caudata basi subinaequali acuta et bicallosa 14–16 cm. longa 5–6 cm. lata e dimidio inferiore pinnatinervia, nervis circa 6×2, rugosa, subtus ad nervos prope marginem adpresso-pubescentia, petiolo gracili 1–2.5 cm. longo

glabro, petiolis longioribus ad medium alatis; spicae oppositifoliae comparate crassis et brevibus 35–40 mm. longae 5 mm. crassae, pedunculo gracili 15 mm. longo glabro; bracteae cucullato-inflexae glabrae, floribus sessilibus perfectis; stigmata 2–3 brevia sessilia; baccae breviter cylindraceae vel pressu rhombicae.

Huánuco: Huacachi near Muña, 1,950 meters, in forest, *Macbride 4103* (herb. Field Mus. No. 535,172, type). Trail to Tambo de Vaca, 2,400 meters, in forest, *4333*.

Piper pseudo-churumayu (Kunth) C. DC. in DC. Prodr. 16, pt. 1: 288. 1869. *Steffensia pseudo-churumayu* Kunth, Linnaea 13: 662. 1839. *Artanthe pseudo-churumayu* Miq. Syst. 407. 1844; Ill. Piper. *pl. 75*.

A shrub, glabrous except for the appressed-pubescent or puberulent nerves beneath; leaves ovate, acuminate, rounded at the base with one side slightly longer and abruptly decurrent to the petiole, 26 cm. long, 16 cm. wide, pinnately nerved from somewhat more than the lower half, the nerves 5–6×2; petiole 20+2–5 mm. long, winged; spikes 140 mm. long, 3 mm. thick; peduncle 25 mm. long; stigmas sessile. Neg. 11026.

Type from subandine Peru, *Poeppig 35*.—Huánuco: Cochero, *Poeppig 166*, *D1501*.—Loreto: Mainas, Yurimaguas, *Poeppig*. Ucayali River, *Tessmann 3209*. Also in Brazil and Venezuela.

Piper pseudo-curvatum Trelease, sp. nov. *P. munchanum* var. *magnifolium* C. DC. in DC. Prodr. 16, pt. 1: 259. 1869.

Frutex glaber vel ad nervos paginae inferioris folii obscure puberulus; folia elliptico-subobovata abrupte obtuso-acuminata basi cuneata 40 cm. longa 22 cm. lata undique pinnatinervia, petiolo crassissimo lamina decurrente alato; spicae 50–200 mm. longae 10–15 mm. crassae leviter curvae, pedunculo 30 mm. longo 5 mm. crasso; baccae rotundatae, stylo breviusculo, stigmatibus subparvis.

Huánuco: Cochero, *Poeppig 1312*, type.—San Martín: Tarapoto, *Spruce 4829*.

Piper pseudo-flexuosum Trelease, sp. nov.

Frutex crispo-hirtellus; folia lanceolato-ovata acuminata basi inaequilaterali cordulata 13 cm. longa 6 cm. lata e dimidio inferiore pinnatinervia, nervis 5×2, utrinque pubescentia, petiolo 10+3 mm. longo; inflorescentia non visa.

Type from subandine Peru, *Poeppig* (herb. Vienna, type; herb. Berol.).

Piper pseudo-matico Trelease, sp. nov.

Frutex 3-metralis conspicue nodosus, internodiis floriferis modice elongatis et crassis primo dense retrorse villoso-hirsutis, serius glabrescentibus et lenticellis parvis conspersis; folia elliptica vel elliptico-obovata sensim longiuscule acuminata basi inaequaliter obtusa 12–15 cm. longa 5–6 cm. lata e dimidio inferiore pinnatinervia, nervis valde prominentibus 6–7×2, rugosissima granuloso-scabra, subtus ad nervos conspicue hirsuta, petiolo 10 mm. vel 10+3 mm. longo incurvo-hirsuto exalato; spicae oppositifoliae fere rectae vel arcuatae 70 mm. longae 3 mm. crassae in statu florifero, spicae fructiferae rectae 90 mm. longae 4 mm. crassae, pedunculo brevi 5–6 mm. longo plus minusve hamato-hirsuto; bracteae rotundo-subpeltatae ciliatae, floribus perfectis sessilibus; stigmata 3 brevia sessilia; baccae nigrae breviter cylindraceae glabrae.

Huánuco: Mito, 2,700 meters, in canyon along a stream, *Macbride & Featherstone 1488* (herb. Field Mus. No. 517,987, type), *3327*.—Junín: Carpapata, *Killip & Smith 24460*. "Matico."

Piper pseudo-mollicomum C. DC. in DC. Prodr. 16, pt. 1: 278. 1869. *P. Poeppigii* Steud. Nom. Bot. ed. 2. 2: 342. 1840. *Steffensia Poeppigii* Kunth, Linnaea 13: 646. 1839. *Artanthe Poeppigii* Miq. Syst. 437. 1844.

A shrub with retrorsely appressed-hairy twigs; leaves elliptic-subovate, acuminate, rounded at the base with one side shorter, 12–14 cm. long, 5.5–7 cm. wide, pinnately nerved from somewhat more than the lower half, the nerves 5–6×2, soft-hairy but scabrous above from persistent hair bases; petiole 10+2 mm. long, hirsute; spikes 100 mm. long, 2–3 mm. thick; peduncle 10 mm. long, hispid. Neg. 8422.

Loreto: Mainas, Yurimaguas, *Poeppig 2290* (type), *D2290*. Río Blanco, *Tessmann 3011*.—Huánuco: Cochero, *Dombey 928*.—Without locality, *Gay* in 1839–1840; *Mathews 1693, 1145 bis, 1146, 1705*.

Piper pseudo-mollicomum var. **dichotomum** C. DC. in DC. Prodr. 16, pt. 1: 279. 1869.

A young, less pubescent form with oblanceolate leaves 9.5 cm. long and 3.5 cm. wide.

Type from subandine Peru, *Poeppig*.

Piper pseudo-munchanum Trelease, sp. nov. *P. munchanum* Auct.

Frutex glaber; folia lanceolato-elliptica utrinque acuta 28 cm. longa 12 cm. lata ubique pinnatinervia, petiolo 2 cm. longo alato;

spicae 50 mm. longae 10 mm. crassae, pedunculo 10 mm. longo curvo; baccae obovoideae, stylo longo, stigmatibus parvis patentibus.

San Martín: Tarapoto, *Spruce 4341*, type.

Piper puberulescens Trelease, sp. nov.

Frutex 3-metralis nervis folii subtus subpuberulis exceptis glaber; folia late lanceolata subacuta basi breviter subtruncato-cordata et aequilateralia vel distincte obliqua 25–30 cm. longa 9–12 cm. lata undique pinnatinervia, nervis e dimidio inferiore magis protractis, petiolo ad 11 cm. longo membranaceo-alato; spicae juvenes 15 mm. longo 2 mm. crassae, pedunculo recurvo aequilongo.

Loreto: Yurimaguas, 135 meters, *Killip & Smith 29057* (type in U. S. Nat. Herb.).

Piper pubibaccum C. DC. Bot. Jahrb. 40: 251. 1908.

A shrub, 3.5 meters high, glabrous except for the hirtellous nerves beneath; leaves obliquely round-ovate, abruptly short-acuminate, somewhat shorter and rounded on one side, the longer side round-auricled with the auricle about equaling the petiole, 22 cm. long, 18 cm. wide, subpinnately nerved from below the upper third, the nerves 5+7–8; petiole 5+1 cm. long, winged; bracts crescentic-subpeltate; berries round, puberulent. Neg. 11029.

Huánuco: Between Monzón and Río Huallaga, 600–700 meters, in forest, *Weberbauer 3581*, type.—Junín: La Merced, in forest, 600 meters, *5518*.

Piper pubinervulum C. DC. Ann. Cons. Jard. Genève 21: 240. 1923.

A shrub, glandular-granular, more or less persistently crisp-subvillous except for the upper leaf surface; leaves elliptic or suboblong, abruptly subacuminate, acute-based, 16 cm. long, 6–8 cm. wide, pinnately nerved from below the upper third, the nerves about 6×2; petiole 10 mm. long; spikes 140 mm. long, 10 mm. thick; peduncle 15–20 mm. long; bracts round-subpeltate; berries round, with a short thick style; stigmas broad and large, spreading. Neg. 11032.

Piura: Huancabamba, *Weberbauer 6093*, type.

Piper pullispicum Trelease, sp. nov.

Frutex subhumilis, internodiis superioribus gracilibus subelongatis crispo-pubescentibus; folia lanceolata ad elliptico-acuminata basi acuta uno latere paullo breviora 16–25 cm. longa 6–11 cm. lata e dimidio inferiore pinnatinervia, nervis 5–6×2, in sicco viridia

lucida, subtus ad nervos substrigosa, petiolo 15–30 mm. longo crispo-pubescente; spicae 80 mm. longae 3–4 mm. crassae, primo obscure rubrae, serius brunnescentes, pedunculo 10–15 mm. longo sparse pubescente; bracteae rotundo-subpeltatae ciliolatae.

Loreto: Pongo de Manseriche, 280 meters, *Ynes Mexia 6352* (type in herb. Univ. Calif.).

Piper punctatum R. & P. Fl. 1: 36. *pl. 62.* 1798. *Artanthe punctata* Miq. Syst. 522. 1844.

A glabrous, black-punctulate shrub scarcely distinguishable from *P. heterophyllum* except that its spikes are straight and nearly erect.

Huánuco: Iscutuna and Pillao, *Ruiz & Pavón*, type.

Piper punctulatifolium Trelease, sp. nov.

Frutex glaber valde nigro-punctulatus, internodiis superioribus gracilibus elongatis; folia elliptica anguste acuminata basi acuta 18–19 cm. longa 8–11 cm. lata, superiora basi inaequilateralia, inferiora basi aequilateralia, e dimidio inferiore pinnatinervia, nervis 6×2, in sicco tenuia subtus lucida, petiolo 10+5 mm. longo superne exalato, foliorum latiorum 30–40 mm. longo et fere ad apicem alato; inflorescentia non visa.

Loreto: Santa Rosa, 135 meters, *Killip & Smith 28783* (type in U. S. Nat. Herb.).

Piper puniceum Trelease, sp. nov.

Frutex vel arbuscula nodosa, in statu juvenili ubique dense rubescenti-sericeo-villosa; folia oblique lanceolato-elliptica anguste acuminata basi rotundata 14–15 cm. longa 6 cm. lata e dimidio inferiore pinnatinervia, nervis 6×2, supra inter pilos dense fusco-granulosa, petiolo 3+3 mm. longo; spicae juvenes 20 mm. longae 2 mm. crassae; bracteae rotundo-subpeltatae.

Junín: Perené, 1,500 meters, *Carlos Schunke 236* (herb. Field Mus. No. 627,350, type), *196*.

Piper quimirianum Trelease, sp. nov.

Frutex nodosus ramosus 2-metralis, internodiis floriferis brevibus cito crassioribus transiente crispo-pubescentibus; folia elliptica vel elliptico-subobovata acuminata basi subaequilaterali sensim acutata 10–12 cm. longa 5–6 cm. lata e 2 tertiis inferioribus pinnatinervia, nervis 5×2, in sicco firmo-papyracea caeruleo-viridia, subtus ad nervos subobscure adpresso-pubescentia, petiolo 3+2 mm. longo

exalato; spicae juvenes 40 mm. longae 2 mm. crassae, pedunculo crasso 5 mm. longo glabro; bracteae rotundo-subpeltatae fimbriatae.

Junín: East of Quimirí Bridge, La Merced, 800–1,300 meters, *Killip & Smith 23904* (type in U. S. Nat. Herb.).

Piper rasile Trelease, sp. nov.

Frutex 3–4-metralis, internodiis floriferis subgracilibus elongatis incurvo-hispidis; folia elliptica acuminata basi obtusa uno latere longiora et interdum acuta 14–15 cm. longa 5 cm. lata e 2 tertiis inferioribus pinnatinervia, nervis 6×2, granuloso-scabra, subtus ad nervos incurvo-hirsuta, petiolo 10+2 mm. longo hispido; spicae 90 mm. longae 3 mm. crassae, pedunculo gracili 10 mm. longo scabrido.

Junín: Puerto Bermúdez, 375 meters, *Killip & Smith 26404* (type in U. S. Nat. Herb.).

Piper ratisportanum Trelease, sp. nov.

Frutex glaber glanduloso-granulosus 3–4-metralis, internodiis floriferis modice crassis et elongatis; folia subovato-elliptica breviter acuminata basi paullo inaequilateralia basi infima acuta 30 cm. longa 15 cm. lata ubique pinnatinervia, nervis circa 16×2, petiolo 5+5 mm. longo exalato; spicae juveniles 85 mm. longae 6 mm. crassae mucronatae, pedunculo 10 mm. longo; bracteae rotundo-subpeltatae ciliatae; ovarium submucronatum, stigmatibus 3 in mucrone insertis.

Loreto: Balsapuerto, 150–350 meters, *Killip & Smith 28570* (type in U. S. Nat. Herb.).

Piper recensitum Trelease, sp. nov.

Frutex vel arbuscula glabra, internodiis floriferis brevibus gracilibus; folia subovato-elliptica anguste acuminata basi fere aequilaterali subcuneata 11–14 cm. longa 4–5 cm. lata e dimidio inferiore pinnatinervia, nervis circa 6×2, in sicco tenuia viridia, petiolo vix 5 mm. longo exalato; spicae floriferae 20 mm. longae 2 mm. crassae, pedunculo 3–4 mm. longo; bracteae rotundo-subpeltatae ciliolatae.

Loreto: Santa Rosa, 135 meters, *Killip & Smith 28810* (type in U. S. Nat. Herb.), *28728, 28748.*

Piper recreoense Trelease, sp. nov.

Frutex humilis glaber plus minusve conspicue nigro-punctulatus, internodiis floriferis gracilibus modice elongatis; folia anguste lanceolata utrinque sensim acutata 9–10 cm. longa 1.5–2 cm. lata ubique

pinnatinervia, nervis 10–12×2, in sicco tenuia viridia, petiolo gracili 5 mm. longo exalato; spicae 15 mm. longae 4 mm. crassae primo mucronatae, pedunculo refracto filiformi 10 mm. longo; bracteae inconspicuae subpeltatae; baccae subglobosae, stigmatibus 3 majusculis fere sessilibus.

Loreto: Recreo, Yurimaguas, 155–210 meters, *Llewelyn Williams 3928* (herb. Field Mus. No. 622,942, type).

Piper redactum Trelease, sp. nov.

Frutex humilis, ramulis tomentosis; folia acuta vel subacuminate acutata basi cordata 5 cm. longa 2.5–3 cm. lata e dimidio inferiore pinnatinervia, nervis 2–3×2, supra minute pubescentia papillosa, subtus dense crispo-pubescentia, petiolo 5 mm. longo; spicae 30 mm. longae 5 mm. crassae, pedunculo 10 mm. longo retrorso-hirsuto; bracteae rotundo-subpeltatae nigrae, margine angusto brunneo; stigmata 3 linearia sessilia.

Amazonas: Chachapoyas, *Mathews* in 1836 (type in herb. Kew.).

Piper reductipes Trelease, sp. nov.

Frutex glaber nigro-granulosus *P. subsessili* similis, internodiis floriferis brevibus gracilibus; folia lanceolato-elliptica anguste acuminata basi inaequilaterali acuta, margine ad basin petioli breviusculi decurrente, 16 cm. longa 5.5–6.5 cm. lata e dimidio inferiore pinnatinervia, nervis 6×2; spicae juvenes 25 mm. longae 2 mm. crassae arcuatae, pedunculo 5 mm. longo; bracteae parvae subpeltatae; baccae teretes, stigmatibus sessilibus.

Loreto: La Victoria on the Amazon River, edge of forest, *Llewelyn Williams 2700* (herb. Field Mus. No. 617,253, type), *3143*. "Cordoncillo."

Piper reductipes var. **amplum** Trelease, var. nov.

Folia elliptica 22 cm. longa 8 cm. lata infra tertium supremum pinnatinervia, nervis 7–8×2, petiolo 2+3 vel 3+7 mm. longo.

Loreto: La Victoria on the Amazon River, in forest, *Llewelyn Williams 2971* (herb. Field Mus. No. 608,157, type). "Cordoncillo."

Piper reductipes var. **stenostachys** Trelease, var. nov.

Petiolo ut pedunculo filiformi 10 mm. longo; spicis vix 35 mm. longis et 2 mm. crassis.

Loreto: La Victoria on the Amazon River, in forest, *Llewelyn Williams 2578* (herb. Field Mus. No. 617,343, type). "Cordoncillo."

Piper relaxatum Trelease, sp. nov.

Frutex nodosus 2–3-metralis glaber vel ad nervos folii subtus obscure puberulus, internodiis floriferis brevibus gracilibus; folia lanceolato-elliptica anguste acuminata basi acuta 15–16 cm. longa 6–7 cm. lata e dimidio inferiore pinnatinervia, nervis 5×2, in sicco tenuia subopaca, petiolo 15 mm. longo exalato; spicae 90 mm. longae 3 mm. crassae subacutae, pedunculo 8–10 mm. longo; bracteae parvae rotundo-subpeltatae ciliatae.

Loreto: Balsapuerto, 150–350 meters, *Killip & Smith 28385* (type in U. S. Nat. Herb.).

Piper resalutatum Trelease, sp. nov.

Arbor 5–6-metralis, internodiis floriferis brevibus subgracilibus sordide villosis; folia ovata vel inaequilateraliter suboblonga acuminata latere breviore basi subacuta 20–27 cm. longa 9–13 cm. lata e dimidio inferiore submultiplinervia, nervis 6–7×2, subtus sparse molliter pubescentia ad nervos breviter villosa, petiolo 10+3–20+5 mm. longo alato breviter villoso; spicae 140 mm. longae 5 mm. crassae, pedunculo 10 mm. longo ferrugineo-pubescente; bracteae rotundo- vel crescentico-subpeltatae ciliolatae; baccae rotundatae, stylo gracili, stigmatibus 3 gracilibus.

Junín: San Nicolás, Pichis Trail, 110 meters, *Killip & Smith 26024* (type in U. S. Nat. Herb.).

Piper resatum Trelease, sp. nov.

Frutex nodosus 3–4-metralis nervis folii subtus minute puberulis exceptis glaber, internodiis floriferis gracilibus breviusculis; folia late elliptica vel subovata acuminata basi aequilaterali acuta 13–16 cm. longa 7–9 cm. lata e dimidio inferiore pinnatinervia, nervis 6×2, in sicco tenuia opaca, subtus paullo pallidiora, petiolo 10 mm. longo non vaginante; spicae juvenes 60 mm. longae 2 mm. crassae acutatae, pedunculo 5 mm. longo; bracteae rotundo-subpeltatae ciliolatae.

Loreto: Balsapuerto, 150–350 meters, *Killip & Smith 28451* (type in U. S. Nat. Herb.).

Piper Restio Trelease, sp. nov.

Arbor gracilis 7-metralis glabra, internodiis floriferis breviusculis gracilibus nigrescentibus plus minusve nigro-punctulatis; folia rotundo-elliptica vel oblongo-elliptica obscure obtuso-acuminata basi inaequaliter aperte cordata 16 cm. longa 9–12 cm. lata e 2 tertiis inferioribus submultiplinervia, nervis circa 6+5, petiolo 4–7 cm.

longo ad laminam alato; spicae oppositifoliae 350 mm. longae et 3 mm. crassae vel ultra, pedunculo 15–20 mm. longo; bracteae triangulari-subpeltatae ciliatae; baccae subquadrangulares cum rhachi elongatae glabrae, stigmatibus 3 sessilibus.

Huánuco: Posuso, 600 meters, on gravel flat, *Macbride 4689* (herb. Field Mus. No. 535,763, type).

Piper restrictum Trelease, sp. nov.

Frutex 3–4-metralis glaber plus minusve nodosus, internodiis floriferis gracilibus subelongatis; folia elliptica sensim acuminata basi subacuta, uno latere paullo breviore, 15–19 cm. longa 7–8 cm. lata undique pinnatinervia, nervis circa 10×2, in sicco firmo-papyracea, petiolo 5+3 mm. longo exalato; spicae 80 mm. longae 3 mm. crassae anguste cuspidatae, pedunculo 5 mm. longo; baccae propter pressum angulosae depresso-truncatae, stigmatibus 3 minutis sessilibus.

Junín: Cahuapanas, 340 meters, *Killip & Smith 26797* (type in U. S. Nat. Herb.), *26737*.

Piper reticulatum L. Sp. Pl. 29. 1753. *P. smilacifolium* HBK. Nov. Gen. & Sp. 1: 56. 1815. *Enckea smilacifolia* Kunth, Linnaea 13: 605. 1839. *Artanthe Ruiziana* Miq. Lond. Journ. Bot. 4: 444. 1866. *E. reticulata* Miq. Syst. 365. 1844. *P. tarapotianum* C. DC. in DC. Prodr. 16, pt. 1: 246. 1869. *P. pangoense* C. DC. op. cit. 368.

A glabrous or very evanescently and locally puberulent shrub; leaves ovate, acuminate, rounded or subtruncate at the base, 11–16 cm. long, 6–14 cm. wide, or even much larger, 7-nerved; petiole 5–10 mm. long; spikes slender but becoming 80 mm. long, 3 mm. thick; peduncle 10 mm. long; bracts spatulate; berries globose, papillate, with an apical disk bearing the broad sessile stigmas.

Loreto: Puerto Arturo, 200 meters, *Williams 5096*.—Junín: La Merced, *Killip & Smith 23737*. Puerto Yessup, *Killip & Smith 26353*.—San Martín: Tarapoto, *Williams 6037*. As here accepted, a scarcely divisible species, ranging through the West Indies and from Brazil northwestward into Central America.

Piper reticulatum var. **santa-rosanum** Trelease, var. nov.

Differt foliis deltoideo-ovatis 9-nerviis basi retrorso-truncatis 21–29 cm. longis 18–25 cm. latis.

Loreto: Santa Rosa, 150–210 meters, in forest, *Llewelyn Williams 4793* (herb. Field Mus. No. 629,672–673, type).

Piper rhinostachyum Trelease, sp. nov.

Frutex 3–5-metralis nodosus nervis folii subtus sparse velutinis exceptis glaber, internodiis floriferis brevibus crassiusculis; folia subovato-elliptica breviter obtuso-acuminata basi truncato-subcordata 22 cm. longa 12 cm. lata e 2 tertiis inferioribus pinnatinervia, nervis 8–10×2 intermediis adjectis, in sicco tenuia viridia lucida, petiolo 2 cm. longo fragili-alato; spicae fructiferae 40 mm. longae 5 mm. crassae, ante anthesin 20 mm. longae 3 mm. crassae cum rostro gracili 4 mm. longo, pedunculo crasso vix 10 mm. longo; bracteae rotundo-subpeltatae; baccae rotundatae, stigmatibus sessilibus.

Piper riojanum Trelease, sp. nov.

Frutex pagina superiore folii excepta transiente puberulus, internodiis floriferis subgracilibus elongatis; folia ovata vel subobovata acute acuminata basi paullo inaequilateraliter cordata 18–22 cm. longa 10–14 cm. lata e dimidio inferiore pinnatinervia, nervis circa 6×2, petiolo 15+2 mm. longo transiente alato; spicae 150 mm. longae 4 mm. crassae, pedunculo 10 mm. longo; bracteae crescentico-subpeltatae; baccae breviter cylindraceae vel cubicae puberulae, stigmatibus 3 minutis sessilibus.

Amazonas: Rioja, Moyobamba, 2,700–3,300 meters, *Llewelyn Williams 7600* (herb. Field Mus. No. 629,721, type). "Cordoncillo."

Piper roqueanum Trelease, sp. nov.

Frutex glaber nigro-punctulatus, nodis plus minusve carnoso-verrucosis, internodiis crassiusculis; folia elliptica vel subovata basi obtusa vel uno latere breviora 22–30 cm. longa 15–19 cm. lata undique pinnatinervia, nervis circa 16×2, petiolo 5+5 mm. longo; spicae juveniles 25 mm. longae 5 mm. crassae, pedunculo vix 10 mm. longo.

San Martín: San Roque, in forest, 1,350–1,500 meters, *Llewelyn Williams 6961* (herb. Field Mus. No. 623,003, type).

Piper rubiginosum Trelease, sp. nov.

Frutex 3–4-metralis nodosus, internodiis floriferis brevibus crassis ferrugineo-tomentulosis; folia lanceolata vel elliptico-subovata acuminata basi inaequilaterali rotundata vel subcordulata 12–16 cm. longa 4.5–8 cm. lata e dimidio inferiore pinnatinervia, nervis 5–6×2, in statu adulto subrugosa, supra minute granuloso-asperata, subtus molliter ferrugineo-hirsuta vel breviter villosa, petiolo 5+2 mm. longo exalato velutine ferrugineo-tomentuloso; spicae 110 mm.

longae 3–4 mm. crassae, pedunculo 5 mm. longo tomentuloso; bracteae rotundo-subpeltatae, margine crispato.

Junín: Puerto Yessup, 400 meters, *Killip & Smith 26292* (type in U. S. Nat. Herb.).

Piper rubribaccum Trelease, sp. nov.

Frutex compactus 2-metralis nodosus, internodiis subgracilibus elongatis glabris praesertim ad nodos plus minusve pallido-granulosis; folia lanceolato-oblonga vel elliptico-suboblonga acuminata basi inaequaliter rotundata vel latere longiore cordulata 11–14 cm. longa 3.5–6 cm. lata e dimidio vel 2 tertiis inferioribus pinnatinervia, nervis circa 5×2, supra lucida, subtus ad nervos minute puberula, petiolo 5–5+2 vel 10 mm. longo glabro exalato; spicae oppositifoliae fere rectae 80 mm. longae 4 mm. crassae, pedunculo 5 mm. longo glabro; bracteae inconspicuae transverso-subpeltatae ciliolatae, floribus sessilibus perfectis; stigmata 2–3 minuta sessilia; baccae rotundo-subquadrangulares primo rubescentes.

Huánuco: Posuso, 600 meters, *Macbride 4565* (herb. Field Mus. No. 535,642, type).

Piper rugosibaccum Trelease, nom. nov. *P. lanceolatum* var. *mucronatum* C. DC. Verh. Bot. Ver. Brandenb. 47: 106. 1905.

A more or less obscurely crisp-puberulent, granular shrub; leaves lanceolate, acuminate, acute-based, 14–15 cm. long, 4–5 cm. wide, pinnately nerved throughout; petiole 10 mm. long; spikes 30 mm. long, 5 mm. thick, gently curved, cuspidate; peduncle 10 mm. long; berries globose, wrinkled; stigmas sessile.

Loreto: Iquitos, *Ule 6246*, type.

Piper rugosilimbum Trelease, sp. nov.

Frutex humilis nodosus, internodiis brevibus transiente sparse pilosis; folia lanceolata acuta vel subobtusa basi acuta et aequilateralia vel uno latere (abnormaliter?) multo breviore 9–14 cm. longa 3.5–5 cm. lata et ultra e 2 tertiis inferioribus pinnatinervia, nervis 4–5×2 ut venis majoribus supra profunde impressis et subtus prominentibus, obscure strigosa firma viridia, petiolo vix 10 mm. longo primo alato; spicae in vivo luteae erectae 15 mm. longae (et ultra?) 3 mm. crassae, pedunculo 7 mm. longo glabro; bracteae crescenticae; ovarium teres conice acutatum, stigmatibus 3 brevibus latis.

Loreto: Mishuyacu near Iquitos, 100 meters, in forest, *G. Klug 193* (herb. Field Mus. No. 630,030, type).

Piper(?) sagittifer Trelease, sp. nov.

Suffrutex, internodiis breviusculis inferne crassis et fistulosis plus minusve dense pilosis; folia oblonga vel triangulari-lanceolata vel sagittata obtusa basi oblique cordata 20 cm. longa et 9 cm. lata vel ultra ubique submultiplinervia, nervis 6–8×2, subtus ad nervos subadpresso-pilosa, petiolo 4–6 cm. longo alato; inflorescentia non visa.

Loreto: Pebas on the Amazon River, in forest, *Llewelyn Williams 1605* (herb. Field Mus. No. 608,181, type), *1945*.

Piper sandianum C. DC. Bot. Jahrb. 40: 247. 1908.

A glabrous shrub, or the nerves crisp-pubescent above; leaves ovate, acuminate, obtuse at the base with one side distinctly shorter, 15–16 cm. long, 9–11 cm. wide, pinnately nerved from the lower half, the nerves about 5×2; petiole 10+5 mm. long; spikes very thick, 130 mm. long, 20 mm. thick; peduncle 5 mm. long; bracts transversely subpeltate, ciliolate; berries round; stigmas sessile. Neg. 11038.

Puno: Sandía, 2,400 meters, *Weberbauer 727*, type.

Piper sangorianum C. DC. Candollea 1: 140. 1923; 2: 187. 1925.

A glandular-punctulate shrub with gray-puberulent or velvety twigs and nerves beneath; leaves elliptic or elongate-elliptic, acute at both ends, 9–15 cm. long, 4–5.5 cm. wide, pinnately nerved throughout; petiole 5–10 mm. long; spikes 15 mm. long, 3 mm. thick; peduncle 5 mm. long; ovary round; stigmas sessile.

Puno: Sangari, *Lechler 2527*, type.

Piper sanguineispicum Trelease, sp. nov.

Arbor 5–6-metralis nervis folii subtus griseo-pubescentibus exceptis glabra, internodiis floriferis modice brevibus et gracilibus; folia obovata basi oblique auriculata, sinu laterali aperto, latere longiore petiolum bene excedente, 30–32 cm. longa 13–16 cm. lata e 2 tertiis inferioribus subpinnatinervia, nervis circa 5×2, nervis supplementariis in auricula dispositis, petiolo 4–5 mm. longo alato; spicae juvenes 50 mm. longae 3 mm. crassae acutatae in vivo obscure rubrae, pedunculo gracili 3 cm. longo; bracteae rotundo-subpeltatae glabrae.

Loreto: Iquitos, 100 meters, *Killip & Smith 27135* (type in U. S. Nat. Herb.), *27325*.

Piper san-nicolasense Trelease, sp. nov.

Frutex 3-metralis nodosus, internodiis floriferis brevibus modice gracilibus transiente rigide crispo-villosis; folia elliptico-lanceolata acute acuminata basi subaequilaterali acuta 16–18 cm. longa 6–7 cm. lata ubique pinnatinervia, nervis circa 12×2, supra glabrescentia, subtus ad nervos rigide pilosa, petiolo 10 mm. longo plus minusve incurvo-piloso exalato; spicae 70 mm. longae 2–3 mm. crassae, pedunculo gracili 10 mm. longo sparse piloso; bracteae rotundo-subpeltatae ciliolatae; ovarium acutatum, stigmatibus 3 sessilibus.

Loreto: San Nicolás, Pichis Trail, 1,100 meters, *Killip & Smith 26009* (type in U. S. Nat. Herb.).

Piper san-ramonense Trelease, sp. nov.

Frutex gracilis *P. dispanso* similis, foliis non nigro-punctulatis, nervis subtus grosse granulosis; spicae juvenes 7 mm. longae 1 mm. crassae.

Junín: Schunke Hacienda, San Ramón, 1,400–1,700 meters, *Killip & Smith 24585* (type in U. S. Nat. Herb.).

Piper san-roqueanum Trelease, sp. nov.

Frutex nodosus glaber, internodiis floriferis brevibus cito crassiusculis; folia subelliptica utrinque acuta, uno latere breviore, 10–15 cm. longa 3–4.5 cm. lata undique pinnatinervia, nervis 8×2, in sicco firma pallida, petiolo 5+5 mm. longo alato; spicae filiformes 100 mm. longae, pedunculo 1 cm. longo; bracteae pallido-zonatae rotundo-subpeltatae parvae ciliolatae; baccae truncatae cum rhachi elongatae, stigmatibus 3 minutis sessilibus.

San Martín: San Roque, in forest, 1,350–1,500 meters, *Llewelyn Williams 7402* (herb. Field Mus. No. 623,525, type).—Loreto: Iquitos, *Killip & Smith 27306*.

Piper santa-ritanum Trelease, sp. nov.

Frutex nodosus, internodiis gracilibus brevissimis transiente pallide sericeo-villosis; folia lanceolata sensim attenuata basi inaequilaterali cordulata 11–14 cm. longa 3–4 cm. lata e dimidio inferiore pinnatinervia, nervis circa 6×2, valde bullulato-lacunosa, supra glabra, subtus molliter velutina, petiolo vix 5 mm. longo molliter piloso; spicae rectae, juvenes 40 mm. longae 3 mm. crassae, pedunculo brevissimo velutino.

Cuzco: Santa Rita, Santa Ana Valley, 2,300 meters, *Fortunato L. Herrera 1551* (type).

Piper santiaganum Trelease, sp. nov.

Frutex, petiolis et nervis folii subtus velutino-puberulis; folia ovata subacuminata basi subcordulata 15 cm. longa 8–9 cm. lata e dimidio inferiore vel paullo altius pinnatinervia, nervis 5×2, petiolo 2 cm. longo infra medium vaginante; spicae juveniles 60 mm. longae 3 mm. crassae mucronatae, pedunculo 10 mm. longo.

Loreto: Mouth of Río Santiago, 160 meters, *G. Tessmann 3971* (type in herb. Berol.). Also Seringal São Francisco, Rio Acre, Brazil, *Ule 9283* (herb. Kew.).

Piper sapotoanum Trelease, sp. nov.

Frutex, internodiis floriferis mediocribus aliquantum transiente crispo-pubescentibus vel laxe subtomentosis; folia elliptica vel subrhombea acuminata basi inaequilaterali cordulata 16–19 cm. longa 7–8 cm. lata undique subpinnatinervia, nervis circa 8×2, aliis brevibus basilaribus in auriculis dispositis, subtus sparse pilosa, petiolo 10–15 mm. longo subtomentoso vix alato; spicae 10 mm. longae 5 mm. crassae deflexae breviter mucronatae, pedunculo 5 mm. longo tomentoso; bracteae rotundo-subpeltatae; stigmata 3 stylum distinctum terminantia.

Loreto: Sapoto Yacu, Santa Rosa, 160–210 meters, *Llewelyn Williams 4816* (herb. Field Mus. No. 627,172, type).

Piper sapoto-yacuense Trelease, sp. nov.

Frutex humilis, internodiis floriferis gracilibus breviusculis crispo-pubescentibus; folia lanceolato-elliptica acuminata basi acuta 9–14 cm. longa 4–6 cm. lata undique pinnatinervia, nervis 8–9×2, plus minusve conspicue nigro-granulosa, subtus praesertim ad nervos puberula, petiolo 10 mm. longo gracili exalato nonnihil griseo-pubescente; spicae fructiferae 35 mm. longae 5 mm. crassae acutatae, pedunculo crasso 5 mm. longo griseo-pubescente; bracteae triangulari-subpeltatae; baccae subglobosae plus minusve rugosae, stigmatibus 3 sessilibus.

Loreto: Sapoto Yacu, Santa Rosa, in forest, 155–210 meters, *Llewelyn Williams 4923* (herb. Field Mus. No. 624,945, type). Puerto Arturo, in forest, 155–210 meters, *Williams 5027*. Paraíso, 145 meters, *Williams 3326* (fruit mucronate).

Piper satisfactum Trelease, sp. nov.

Frutex 3-metralis, internodiis floriferis brevibus crassiusculis laxe rigido-villosis; folia lanceolato-elliptica acuminata basi subaequila-

terali acuta 14 cm. longa 5–6 cm. lata undique pinnatinervia, nervis majoribus circa 4×2, utrinque subsparse rigido-villosa, petiolo 5 mm. longo vel in foliis longioribus 10 mm. longo atque late alato, piloso; spicae pendulae 40 mm. longae 4 mm. crassae rubescentes, pedunculo filiformi 7 mm. longo glabrato; bracteae triangulari-subpeltatae ciliatae; baccae rotundatae subtruncatae, stigmatibus 3 brevibus sessilibus.

Junín: Puerto Yessup, 400 meters, *Killip & Smith 26245* (type in U. S. Nat. Herb.).

Piper scabiosifolium Trelease, sp. nov.

Frutex 3-metralis, internodiis floriferis modice gracilibus et longis incurvo-pilosis vel molliter adpresso-pilosis; folia elliptico-lanceolata vel subovata anguste acuminata basi inaequilateralia, uno vel ambobus lateribus rotundatis, 12–14 cm. longa 4–5.5 cm. lata e 2 tertiis inferioribus pinnatinervia, nervis circa 7×2, supra scabra vel hinc inde glabra, subtus ad nervos molliter hirsuta, petiolo 2+3 mm. longo exalato molliter piloso; spicae 25 mm. longae 3 mm. crassae acutatae, pedunculo 10 mm. longo glabro; bracteae rotundo-subpeltatae ciliolatae.

Loreto: Puerto Arturo, 135 meters, *Killip & Smith 27730* (type in U. S. Nat. Herb.).

Piper scabricaule Trelease, sp. nov.

Frutex 3-metralis, internodiis superioribus gracilibus subelongatis minute sed manifeste scabridis; folia rotundo-elliptica vel sub-obovato-elliptica subabrupte acuto-acuminata basi rotundata, uno latere breviore, 19–21 cm. longa 10–11 cm. lata e dimidio inferiore pinnatinervia, nervis 6×2, supra subgrosse albide granuloso-scabrida, subtus ad nervos indistincte adpresso-pubescentia, petiolo 10+5 mm. longo exalato; inflorescentia non visa.

Junín: Near Perené Bridge, Río Paucartambo, 700 meters, *Killip & Smith 25299* (type in U. S. Nat. Herb.).

Piper scabridulicaule Trelease, sp. nov.

Frutex nodosus 3-metralis, internodiis superioribus gracilibus crassiusculis ochroleucis dense breviter scabridis; folia lanceolato-elliptica anguste acuminata basi inaequilateralia, uno vel ambobus lateribus vulgo obtusis, e dimidio inferiore pinnatinervia, nervis 5–6×2, supra granuloso-scabra, subtus ad nervos dense scabra; spicae flexuosae vel arcuatae 110 mm. longae 2 mm. crassae, pedunculo 5 mm. longo scabrido; bracteae rotundo-subpeltatae ciliolatae.

Loreto: Mouth of Río Santiago, *Ynes Mexia 6100* (type in herb. Univ. Calif.).

Piper scalariforme Trelease, sp. nov.

Frutex in sicco fuscescens, internodiis floriferis brevibus modice gracilibus puberulis vel obscure transiente sericeis; folia lanceolata vel lanceolato-oblonga sensim subacuminata basi inaequilaterali rotundata vel cordulata 16–20 cm. longa 5.5–7 cm. lata e dimidio inferiore pinnatinervia, nervis 5×2 venis scalariformibus transversis connexis, in sicco tenuia lucida, subtus pallidiora ad nervos adpresso-puberula, petiolo 10 mm. vel 5–7+3 mm. longo subpuberulo alato; spicae 85 mm. longae 3 mm. crassae, pedunculo 5 mm. longo glabrato; bracteae parvae rotundo-subpeltatae; baccae teretes, stigmatibus sessilibus.

Loreto: Caballo-cocha on the Amazon River, in forest, *Llewelyn Williams 2057* (herb. Field Mus. No. 613,146, type), *2056*. Mishuyacu, 100 meters, *Killip & Smith 29882*.

Piper scapispicum Trelease, sp. nov.

Frutex fistulosus(?) metralis, internodiis floriferis gracilibus elongatis laxe intertexto-villosis; folia ovata sensim acuminata basi subtruncata 22–24 cm. longa 11–13 cm. lata e dimidio inferiore submultiplinervia, nervis 5–6×2, in sicco tenuia brunnescentia, subtus ferrugineo-tomentulosa ad nervos crispo-pilosa, petiolo 15 mm. longo crispo-piloso primo alato; spicae juvenes 25 mm. longae 3 mm. crassae, pedunculo fere aequilongo tomentuloso; bracteae subclavatae.

Loreto: Mishuyacu near Iquitos, 100 meters, in forest, *G. Klug 1420* (herb. Field Mus. No. 627,684, type).

Piper Schunkeanum Trelease, sp. nov.

Frutex, internodiis floriferis mediocribus griseo-villoso-hirsutis; folia subelliptica longiuscule anguste acuminata basi paullo inaequilaterali obtusa 15–16 cm. longa 6.5–7.5 cm. lata e dimidio inferiore pinnatinervia, nervis circa 6×2, supra glabra sed granuloso-asperata, subtus praesertim ad nervos molliter adscendenti-pubescentia, petiolo vix 10 mm. longo molliter brunneo-pubescente basi alato; spicae 110 mm. longae 3 mm. crassae, pedunculo vix 10 mm. longo hirtello; bracteae parvae rotundo-subpeltatae ciliolatae.

Junín: Chanchamayo Valley, 1,200 meters, *Carlos Schunke 275* (herb. Field Mus. No. 571,331, type).

Piper sciaphilum C. DC. Bot. Jahrb. 40: 242. 1908.

A shrub, glabrous except for the obscurely puberulent nerves beneath; leaves ovate, acuminate, rounded at the base with one side slightly longer and abruptly narrowed to the petiole, 15–28 cm. long, 7–17 cm. wide, submultiple-nerved from the lower half or less, the nerves 4–5×2; petiole 20+2 mm. long, scarcely winged; spikes 130 mm. long, 3 mm. thick; peduncle 15 mm. long; bracts transversely subpeltate, ciliate; berries round, with a very short, tapering style; stigmas spreading. Neg. 11040.

Huánuco: Mountains west of Monzón, 1,800 meters, in forest, *Weberbauer 3557*, type.

Piper secundum R. & P. Fl. 1: 36. *pl. 62*. 1798. *P. heteromallum* Pers. Syn. Pl. 1: 33. 1805 (fide Kunth). *Steffensia secunda* Kunth, Linnaea 13: 626. 1839. *Artanthe secunda* Miq. Syst. 516. 1844.

A glabrous, slightly papillate shrub; leaves lance-oblong or elliptic-oblong, acuminate, acute-based, 12–16 cm. long, 6–7 cm. wide, pinnately nerved from below the upper third, the nerves 5×2; petiole barely 10 mm. long; spikes secund, straight, 100 mm. long, 3 mm. thick; peduncle 10 mm. long. Neg. 11041.

Huánuco: Pillao, Muña, Cochero, and Chinchao, *Ruiz & Pavón*, type.

Piper Sellertianum Trelease, nom. nov. *Enckea Lessertiana* Miq. Syst. 349. 1844; Ill. Piper. *pl. 63*, nec *P. Lessertianum* C. DC. Journ. Bot. 4: 164. 1866, nec *P. Lessertianum* C. DC. in DC. Prodr. 16, pt. 1: 258. 1869, nec *Artanthe Lessertiana* Miq. Syst. 405, nec *Carpunya Lessertiana* Presl, Epim. 229, nec *Chavica Lessertiana* Miq. Syst. 270, nec *Ottonia Lessertiana* Miq. Syst. 516; Ill. Piper. *pl. 92*, nec *Pothomorphe Lessertiana* Miq. Syst. 210; Ill. Piper. *pl. 26*.

A glabrous shrub, nodose; flowering internodes slender and short; leaves acuminate, dimorphic, narrowly lanceolate, acute at the base and 13–15 cm. long, 3–4 cm. wide, or broadly elliptic or elliptic-subovate, subacute to round at the base, and 18–19 cm. long, 8–10 cm. thick, 5- or sometimes 7-nerved with connecting cross veins, drying thin, green and sometimes with whitened nerves; petiole 10–15 mm. long, not winged; spikes slender, 50–70 mm. long; peduncle 10 mm. long; bracts subcucullate; ovary oblong-conic, becoming ovoid, scarcely constricted; stigmas 3, sessile.

Loreto: Type from Amazon River (perhaps in Brazil), *Poeppig*. Parana Pura, Yurimaguas, in forest, *Williams, 4605, 4593*. Lower

Río Nanay, in forest, *Williams 484*. Yurimaguas, *Killip & Smith 27616*. Puerto Arturo, *Killip & Smith 27872*. Santa Rosa, *Killip & Smith 28834, 28880*.

Piper Sellertianum var. **tenuiforme** Trelease, var. nov. *P. tenue* Auct.

Frutex nodosus glaber *P. Sellertiano* similis; folia lanceolata acuminata basi acuta 13–15 cm. longa 4–5 cm. lata 5-nervia, petiolo 10 mm. longo versus basin vaginante; spicae graciles 70 mm. longae, pedunculo 10 mm. longo; bracteae subcucullatae; baccae ovoideae non constrictae, stigmatibus 3 sessilibus.

Huánuco: Cochero, *Poeppig* (type).

Piper semicordulatum Trelease, sp. nov.

Frutex nerviis folii subtus aliquantum adpresso-pubescentibus exceptis glaber, internodiis gracilibus modice brevibus; folia elliptica vel oblanceolato-obovata anguste acuto-acuminata basi inaequilateralia et obtusa, latere breviore breviter truncato-cordulato, 15 cm. longa 5.5–6.5 cm. lata e tertio vel dimidio inferiore pinnatinervia, nervis circa 5×2 ut venis majoribus supra impressis subtus prominentibus, petiolo 8–10+2 mm. longo exalato; spicae juvenes 50 mm. longae 2 mm. crassae, pedunculo 5 mm. longo; bracteae parvae rotundo-subpeltatae.

Junín: Chanchamayo Valley, 1,200 meters, *Carlos Schunke 238* (herb. Field Mus. No. 627,313, type).

Piper semicrudum Trelease, sp. nov.

Frutex nodosus glaber vix 2-metralis, internodiis floriferis brevibus gracillimis; folia lanceolata acuminata basi aequilaterali cordato-truncata vel basi inaequilateralia uno latere in petiolum acute decurrente, 10–14 cm. longa 3–5 cm. lata e dimidio inferiore pinnatinervia, nervis circa 5×2, in sicco tenuia subtus pallidiora sparsiuscule nigro-glandulosa, petiolo 10+2 vel 15 mm. longo exalato; spicae fructiferae 20 mm. longae 8 mm. crassae breviter mucronatae, pedunculo patente filiformi 5 mm. longo; bracteae crescenticae; baccae globosae breviter mucronatae, stigmatibus in mucrone insertis.

Loreto: Balsapuerto, 350–550 meters, *Killip & Smith 28524* (type in U. S. Nat. Herb.).

Piper seminitidulum Trelease, sp. nov.

Frutex compactus vel arbuscula nodosa, internodiis floriferis modice brevibus et gracilibus glabris; folia lanceolato-oblonga subacuta basi inaequilaterali acuta 11–13 cm. longa 3.5–5.5 cm. lata e 2

tertiis inferioribus pinnatinervia, nervis circa 4×2, supra lucida, subtus ad nervos minute puberula, petiolo 7+3 mm. longo glabro exalato; spicae oppositifoliae 100 mm. longae 3 mm. crassae, pedunculo brevissimo 3 mm. longo glabro; bracteae parvae rotundo- vel transverso-subpeltatae ciliolatae; flores sessiles perfectae; baccae quadrangulares saepe cum rhachi elongatae, stigmatibus 3 brevibus sessilibus.

Junín: La Merced, 600 meters, *Macbride 5289* (herb. Field Mus. No. 536,314, type). Chanchamayo Valley, *Schunke 528, 1594; Killip & Smith 24093.* Colonia Perené, *Killip & Smith 24964.*

Piper sericeonervosum Trelease, sp. nov.

Arbuscula aliquantum nodosa nerviis folii subtus sericeis exceptis glabra, internodiis floriferis brevibus gracilibus; folia lanceolato-elliptica sensim acuminata basi rotundata, uno latere multo breviore, 11–16 cm. longa 4.5–6 cm. lata ubique pinnatinervia, petiolo 3–5+10–12 mm. longo alato; spicae 90 mm. longae 3 mm. crassae, pedunculo gracili 10 mm. longo; bracteae rotundo-subpeltatae ciliatae; baccae rotundo-truncatae, stigmatibus 3 minutis sessilibus.

Loreto: La Victoria on the Amazon River, *Llewelyn Williams 2928* (herb. Field Mus. No. 608,548, type).

Piper serotinum Trelease, sp. nov.

Frutex 3-metralis, internodiis floriferis breviusculis gracilibus submolliter incurvo-griseo-pubescentibus; folia elliptica acuminata basi obtusa, uno latere paullo breviore, 18 cm. longa 8–9 cm. lata e dimidio inferiore pinnatinervia, nervis 6×2, in statu adulto subrugosa, supra grosse granuloso-scabra, subtus ad nervos breviter pilosa, petiolo 10–15+3 mm. longo subsericeo.

Junín: Perené Bridge, Río Paucartambo, 700 meters, *Killip & Smith 25344* (type in U. S. Nat. Herb.).

Piper serpavillanum Trelease, sp. nov.

Frutex glaber; folia lanceolata sensim longiacuta vel subacuminata basi acuta, uno latere paullo breviora, 18 cm. longa 4–5 cm. lata undique pinnatinervia, nervis circa 10–12×2, petiolo 10+5 mm. longo alato; spicae 80 mm. longae 3 mm. crassae, pedunculo 5–10 mm. longo; baccae truncato-subcubicae, stigmatibus 3 parvis sessilibus.

Type from Serpa Villa, Pará, Brazil, *Martius* (type in herb. Munich).—Loreto: Caballo-cocha on the Amazon River, *Williams 2120.*

Piper setigerum Trelease, sp. nov.

Frutex gracilis erectus metralis nodosus, internodiis floriferis brevibus gracilibus barbatis; folia lanceolato-elliptica acuminata basi fere aequilaterali obtusa 11–14 cm. longa 3.5–5 cm. lata ubique pinnatinervia, nervis circa 6×2, in sicco tenuia viridia utrinque sed praesertim subtus ad nervos sparse barbata, petiolo 3–10 mm. longo late alato; spicae pendulae 25 mm. longae 2 mm. crassae, pedunculo filiformi 8 mm. longo barbato; bracteae rotundo-subpeltatae ciliatae; ovarium globosum, stigmatibus sessilibus.

Junín: Puerto Bermúdez, 375 meters, *Killip & Smith 26510* (type in U. S. Nat. Herb.).

Piper setulosum Trelease, sp. nov.

Frutex 3-metralis, internodiis superioribus gracilibus cito elongatis incurvo-hispidis vel hirsutis; folia elliptica vel sublanceolata vel subovata aliquantum acuminata basi rotundata, uno latere saepe breviore, 11–16 cm. longa 6–7 cm. lata e dimidio inferiore pinnatinervia, nervis 6×2, supra subgrosse granuloso-scabra, subtus ad nervos incurvo-hirtella, petiolo 5+5 mm. longo exalato hispido; inflorescentia non visa.

Loreto: Yurimaguas, 135 meters, *Killip & Smith 27568* (type in U. S. Nat. Herb.).

Piper sidipilum Trelease, sp. nov.

Arbuscula 3–5-metralis, internodiis floriferis longis gracilibus subpersistente inconspicue stellato-pubescentibus; folia ovata falcato-acuminata basi rotundata acute in petiolum contracta 20–22 cm. longa 9–13 cm. lata e dimidio inferiore submultiplinervia, nervis 5×2, in sicco tenuia viridia, subtus praesertim ad nervos inconspicue stellato-pubescentia, petiolo 2–4 cm. longo vaginante puberulo; spicae 110 mm. longae 3 mm. crassae, pedunculo 10 mm. longo puberulo; bracteae triangulari-subpeltatae; baccae teretes, stylo gracili, stigmatibus 3 filiformibus.

Junín: Río Perené, 600 meters, *Killip & Smith 25160* (type in U. S. Nat. Herb.). Colonia Perené, *Killip & Smith 24965*.

Piper silvioberrans Trelease, sp. nov. *P. silvivagum* var. *peruvianum* C. DC. Notizbl. Bot. Gart. Berlin 6: 489. 1917.

Frutex reclinatus nodosus, internodiis floriferis brevibus gracilibus retrorse canescentibus in statu adulto velutinis; folia elliptica protracto-acuminata basi angusta inaequilaterali rotundata vel subcordulata 10–11 cm. longa 4–5.5 cm. lata e dimidio inferiore pinnati-

nervia, nervis circa 5×2, supra minute granulosa et serius lepidota, subtus ad nervos pallido-strigosa, petiolo vix 5 mm. longo canescente; spicae 120 mm. longae 3 mm. crassae acutatae; bracteae rotundo-subpeltatae ciliolatae; baccae teretes subpuberulae, stigmatibus 3 parvis sessilibus.

Loreto: Yurimaguas to Balsapuerto, 135–150 meters, *Killip & Smith 28119* (type in U. S. Nat. Herb.).—Brazil: Seringal Auristella, Rio Acre, *Ule 9290*.

Piper sinuclausum Trelease, sp. nov.

Subarborescens nodosus, internodiis floriferis brevibus crassiusculis primo dense hamate hirsuto-villosis, serius glabrescentibus et pallido-granulosis; folia lanceolata longiattenuata basi inaequilaterali subprofunde (7 mm.) auriculato-cordulata, auricula breviore longiorem late imbricante, 18 cm. longa 6–7 cm. lata e dimidio inferiore pinnatinervia, nervis circa 6×2, in statu adulto rugosa, supra scabra et pilosa, subtus ad nervos hirsuta, petiolo brevi vix 10 mm. longo lamina occulto incurvo-hirsuto exalato; spicae oppositifoliae fere rectae 70 mm. longae 5 mm. crassae, pedunculo brevi 5 mm. longo hamato-hirsuto; bracteae subtriangulari-subpeltatae, margine angustissimo ciliato, floribus sessilibus perfectis; stigmata 3 brevia sessilia; baccae parvae oblongae subteretes.

Huánuco: María del Valle, 2,100 meters, *Macbride 3564* (herb. Field Mus. No. 534,640, type).—Cuzco: Machupicchu, 2,400 meters, *F. L. Herrera 2007*. "Matico."

Piper soledadense Trelease, sp. nov.

Frutex 2–4-metralis, internodiis floriferis subgracilibus elongatis persistente crispe fulvo-villosis; folia elliptico-lanceolata vel ovato-lanceolata acute acuminata basi subobliqua obtusa vel acuta 12–19 cm. longa 5.5–7.5 cm. lata undique pinnatinervia, nervis circa 12×2, praesertim subtus sparse molliter stellato-pubescentia, subtus ad nervos crispo-villosa, petiolo vix 10 mm. longo rigide crispo-villoso exalato; spicae 20–25 mm. longae 3 mm. crassae, pedunculo 7–10 mm. longo rigido-villoso; bracteae triangulari-subpeltatae ciliatae; stigmata 3 in stylo vel mucrone brevi inserta.

Loreto: Soledad, Río Itaya, 110 meters, *Killip & Smith 29769* (type in U. S. Nat. Herb.), *29598, 29711*. Iquitos, *Killip & Smith 27101, 27134*. Between Yurimaguas and Balsapuerto, *Killip & Smith 28107*.

Piper soledadense var. **angustum** Trelease, var. nov.

Folia lanceolato-oblonga 14–16 cm. longa 3.5–4.5 cm. lata; spicae fructiferae curvae 15 mm. longae 5 mm. crassae; baccae globosae magnae dense insertae, stigmatibus sessilibus.

Loreto: San Antonio, Río Itaya, 110 meters, *Killip & Smith 29350* (type in U. S. Nat. Herb.).

Piper soricicaudatum Trelease, sp. nov.

Frutex glaber 3–4-metralis, internodiis floriferis brevibus modice gracilibus; folia lanceolato-oblonga anguste longiacuminata basi subaequilaterali acuta 17 cm. longa 5 cm. lata e dimidio inferiore pinnatinervia, nervis circa 6×2, in sicco tenuia, petiolo 5 mm. longo exalato; spicae 100–140 mm. longae 3 mm. crassae sinuatae, pedunculo 10 mm. longo; bracteae zonulatae parvae rotundo-subpeltatae ciliatae; ovarium teres, stigmatibus 3 minutis sessilibus.

Junín: Puerto Bermúdez, 375 meters, *Killip & Smith 26661* (type in U. S. Nat. Herb.).

Piper sororium (Miq.) C. DC. in DC. Prodr. 16, pt. 1: 295. 1869. *Artanthe sororia* Miq. Lond. Journ. Bot. 4: 443. 1866. *P. undeninervium* C. DC. loc. cit.

A shrub, glabrous or transiently puberulent near the bases of the leaves, these ovate, acuminate, truncately or even deeply cordate, 11–17 cm. long, 7–15 cm. wide, nerved; petiole 3–6 cm. long, winged; spikes slender, curved, equaling the leaves; peduncle 5 mm. long; bracts triangular-subpeltate; berries ovoid; stigmas sessile.

Huánuco: Chinchao, *Ruiz & Pavón*, type.—Loreto (?): Mainas, *Poeppig* (herb. Leningrad).—San Martín: Rumizapa, 400–900 meters, *Williams 6827*.

Piper Spruceanum C. DC. Journ. Bot. 4: 216. 1866.

A shrub, villous with long, pale or yellow hairs throughout; leaves lanceolate or suboblanceolate, subacuminate, acute-based, 18 cm. long, 5 cm. wide, pinnately nerved throughout; petiole 1 cm. long, margined by the decurrent blade; spikes 35 mm. long, 3 mm. thick; peduncle 15 mm. long; bracts inflexed-subpeltate; berries round, granular; stigmas 3, broad, sessile.

San Martín: Tarapoto, *Spruce 4072*, type.

Piper stenostachys C. DC. Ann. Cons. Jard. Genève 2: 254. 1898.

A glabrous shrub; twigs dark-glandular; leaves lance-oblong, acute at both ends, 14 cm. long, 5 cm. wide, pinnately nerved

nearly throughout, the nerves about 12×2; petiole 5 mm. long; spikes curved, filiform, 50 mm. long; bracts triangular-subpeltate, ciliate; ovary glabrous; stigmas on a short style.

Type from Peru, *Gay* in herb. Paris.

Piper Stevensi Trelease, sp. nov.

Frutex, ramulis plus minusve caduce subvillosis; folia lanceolata acuminata basi inaequilaterali cordulata 15–20 cm. longa 5.5 cm. lata e dimidio inferiore pinnatinervia, nervis 6–8×2, supra paullo scabrida, subtus ad nervos laxe pilosa, in statu adulto rugosa, petiolo vix 10 mm. longo piloso; spicae valde curvatae 100 mm. longae 2–3 mm. crassae, pedunculo gracili 10–15 mm. longo hirtello; bracteae triangulari-subpeltatae ciliolatae pallidae; baccae rotundatae, stigmatibus 3 filiformibus sessilibus.

Junín: Huacapistana, *F. L. Stevens 85*, type.

Piper stomachicum C. DC. Bot. Jahrb. 40: 250. 1908.

A medicinal shrub, yellowish-crisp-pilose; leaves ovate, subacute, cordulate, 8–9 cm. long, 4–5 cm. wide, pinnately nerved from below the middle, the nerves 3×2, glabrous above between the nerves; petiole 5–10 mm. long; spikes 3–5 mm. thick, 30–40 mm. long; peduncle 10–15 mm. long; berries round; stigmas 3, sessile. Neg. 11052.

Ancash: Caraz, in thicket, 3,200 meters, *Weberbauer 3028*, type.—Amazonas: Chachapoyas, *Mathews 3223*.

Piper striatinervosum Trelease, sp. nov.

Arbuscula 4–5-metralis petiolis et nervis folii subtus obscure adpresse striato-pubescentibus exceptis glabra, internodiis superioribus comparate gracilibus subelongatis; folia elliptica obtusa basi inaequilateralia, sinu laterali fere clauso, latere majore auriculato et petiolo longiore, 32 cm. longa 19 cm. lata e dimidio inferiore vel altius subpinnatinervia, nervis circa 6+7, in sicco tenuia lucida, petiolo 3–5 mm. longo alato; inflorescentia non visa.

Loreto: Puerto Arturo, 135 meters, *Killip & Smith 27910* (type in U. S. Nat. Herb.).

Piper strigillosicaule Trelease, sp. nov.

Frutex debilis 3–4-metralis, internodiis floriferis brevibus gracilibus pallidis sparse retrorso-strigillosis; folia elliptica ad lanceolata vel oblanceolata acuminata basi inaequilateralia et anguste rotundata vel cordulata 8–10 cm. longa 2–4 cm. lata e dimidio inferiore pinnatinervia, nervis 4–5×2, subtus ad nervos strigillosa, petiolo

4+1 mm. longo strigoso; spicae 100 mm. longae 2 mm. crassae, pedunculo 8 mm. longo glabrato; bracteae parvae griseae rotundo-subpeltatae.

Loreto: Yurimaguas, 135 meters, *Killip & Smith 27615* (type in U. S. Nat. Herb.).

Piper strigillosum Trelease, sp. nov.

Frutex 3-metralis, internodiis superioribus brevibus gracilibus evanescente adpresso-pubescentibus serius albide granuloso-asperatis; folia anguste lanceolata vel subelliptica acute acuminata basi inaequilaterali acuta 12–15 cm. longa 3–5.5 cm. lata e dimidio inferiore pinnatinervia, nervis minute pallido-strigillosis 5×2, in sicco tenuia, petiolo 5+3 mm. longo ut costa griseo-strigilloso; spicae juvenes 15 mm. longae 2 mm. crassae.

Loreto: Puerto Arturo, 135 meters, *Killip & Smith 27813* (type in U. S. Nat. Herb.).

Piper strigosum Trelease, sp. nov.

Frutex 3–4-metralis, internodiis longis crassiusculis adultis rubro-pilosis; folia oblongo-obovata breviter acuminata basi inaequilateralia, uno latere semicirculari altero in auriculam subtruncatam petiolo aequilongam prolongato, 33 cm. longa 17 cm. lata e dimidio inferiore vel paullo altius subpinnatinervia, nervis circa 7×2, in sicco tenuia, utrinque subtus ad nervos densius longipilosa, petiolo 6 cm. longo dense rubro-piloso; inflorescentia non visa.

Loreto: Balsapuerto, 350–550 meters, *Killip & Smith 28538* (type in U. S. Nat. Herb.).

Piper Stuebelii Trelease, sp. nov.

Frutex, internodiis primo molliter crispo-pilosis vel subtomentosis serius aliquanto pallido-granulosis; folia elliptico-lanceolata acuminata basi inaequilaterali cordulata 16–20 cm. longa 6–7 cm. lata e dimidio inferiore pinnatinervia, nervis circa 6+7, granuloso-scabra, subtus ad nervos adpresso-pubescentia, petiolo 5 mm. longo subcrispe pubescente; spicae valde curvae 120 mm. longae 3 mm. crassae, pedunculo 5–10 mm. longo hispido; bracteae inconspicuae rotundo-subpeltatae; baccae teretes.

Loreto(?): Río Huallaga, *Stuebel 68* (type in herb. Berol.).—San Martín: San Roque, *Williams 7056*. Tarapoto, *Williams 5622*. "Cordoncillo."

Piper stupposum A. Dietr. Sp. Pl. 1: 645. 1831. *P. rugosum* Opiz in Presl, Rel. Haenk. 1: 152. *pl. 27.* 1830, non *P. rugosum* Lam. 1791. *Artanthe stupposa* Miq. Syst. 430. 1844.

A densely yellow-hairy shrub; leaves lance-elliptic, subacuminate, subobtuse at the base, 7–10 cm. long, 3.5 cm. wide, pinnately nerved nearly throughout, bullulate-lacunose, not scabrous; petiole 5 mm. long; spikes gently curved, 40 mm. long, 3 mm. thick, blunt; peduncle 10 mm. long; berries round; stigmas 3, sessile.

Type from mountains of Peru, *Haenke* in 1790.

Piper subandinum C. DC. in DC. Prodr. 16, pt. 1: 275. 1869.

A shrub, the twigs and petioles hirtellous with intermingled long soft hairs; leaves elliptic, acuminate, acute at the base with one side slightly shorter, 22 cm. long, 9 cm. wide, pinnately nerved from the lower half, the nerves 4×2, of which the lower 6 are congested toward the base, appressed-pubescent beneath on the nerves; petiole 4+4 mm. long; spikes 65 mm. long, 4 mm. thick; peduncle 5 mm. long, at first hirtellous; bracts round-subpeltate, small, lead-colored, ciliolate.

Huánuco: Cochero, *Poeppig* in 1830, type.

Piper subcordulatum Trelease, sp. nov.

Frutex glaber 2-metralis, internodiis floriferis breviusculis gracilibus; folia ovata acuminata basi rotundata vel cordulata vel cordata 15–22 cm. longa 9–15 cm. lata e 2 tertiis inferioribus submultiplinervia, nervis circa 7×2 intermediis interpositis, petiolo 15–30 mm. longo; spicae 90 mm. longae 3 mm. crassae, pedunculo vix 10 mm. longo; bracteae crescenticae; stigmata fere sessilia.

Loreto: Soledad, Río Itaya, 110 meters, *Killip & Smith 29794* (type in U. S. Nat. Herb.).

Piper subflavicans Trelease, sp. nov.

Frutex in sicco flavescens, ramulis transiente paullo crispo-pubescentibus conspicue pallido-granulosis; folia lanceolata subacuminata basi cordata 7–12 cm. longa 3–5 cm. lata e dimidio inferiore pinnatinervia, nervis circa 5×2, supra granuloso-asperata, subtus sparse adpresso-pubescentia, petiolo vix 5 mm. longo alato; spicae leviter curvae 75 mm. longae 4 mm. crassae mucronatae, pedunculo 20 mm. longo; bracteae subtriangulari-subpeltatae ciliatae; baccae teretes; stigmata 3 sessilia.

Type collected in Peru by *Haenke* (herb. Munich).

Piper subflavispicum C. DC. Bot. Jahrb. 40: 244. 1908.

A shrub, the glabrescent twigs somewhat pilose at the nodes and pale-granular; leaves elliptic or lanceolate, acuminate, subacute at the base, 11–12 cm. long, 4–5 cm. wide, pinnately nerved from the lower half, the nerves about 5×2, deeply impressed above, salient and obscurely appressed-pubescent beneath; petiole 5 mm. long, granular, crisp-ciliate; spikes 30 mm. long, 3 mm. thick, straight, pointed; peduncle barely 10 mm. long; bracts subpeltate, with a narrow yellow margin. Neg. 11054.

Junín: Mountains west of Huacapistana, in thicket, 2,000–2,400 meters, *Weberbauer 2156*, type; *Stevens 82*.

Piper subpatens Trelease, sp. nov.

Frutex 1.5 m. altus conspicue nodosus, internodiis floriferis brevibus crassis dense hirsutis et persistente hispidis; folia lanceolato-elliptica acuminata basi angustata typice subacuta 12–14 cm. longa 4–5 cm. lata e dimidio inferiore pinnatinervia, nervis circa 4×2, scabra, subtus praesertim ad nervos hirsuta; spicae oppositifoliae longae patentes 110–120 mm. longae 2–3 mm. crassae, pedunculo minus quam 5 mm. longo breviter hirsuto; bracteae rotundo-subpeltatae ciliolatae, floribus sessilibus perfectis; stigmata 3 minuta sessilia; baccae breviter cylindraceae.

Huánuco: Posuso, 600 meters, *Macbride 4633* (herb. Field Mus. No. 535,708, type).

Piper subscutatum (Miq.) C. DC. in DC. Prodr. 16, pt. 1: 321. 1869. *Artanthe scutata* Miq. Lond. Journ. Bot. 4: 444. 1866, non *Piper scutatum* Auct.

A glabrous shrub; leaves ovate, slender-acuminate, peltate above the round or subcordate base, 26 cm. long, 20 cm. wide, submultiple-nerved from the lower half, the nerves 6–8×2; petiole 7–9 cm. long, becoming fleshy-warty, winged; spikes 110 mm. long, 3 mm. thick, or becoming 225 mm. long and 6 mm. thick; bracts triangular-subpeltate.

Type from Peru, *Mathews 1700*.—San Martín (?): *Spruce 4848*.—Loreto: Soledad, 110 meters, *Killip & Smith 29774, 29771*.

Piper subsessile Trelease, sp. nov.

Frutex vel arbuscula glabra, internodiis floriferis brevibus gracilibus; folia lanceolato-elliptica acuminata basi acuta et secus petiolum in alam decurrentem protracta 15–18 cm. longa 5–7 cm. lata e 2 tertiis inferioribus pinnatinervia, nervis longioribus circa 6×2,

brevioribus superne dispositis, in sicco tenuia viridia subtus minute nigro-granulosa, petiolo brevissimo; spicae rubescentes 40 mm. longae 3 mm. crassae obtusae, pedunculo filiformi 10 mm. longo; bracteae triangulari- vel crescentico-subpeltatae ciliolatae; baccae rotundatae submucronatae, stigmatibus minutis in mucrone insertis.

Loreto: Santa Rosa, 135 meters, *Killip & Smith 28747* (type in U. S. Nat. Herb.), *28818*. Yurimaguas, *Killip & Smith 28031*. El Recreo, lower Río Huallaga, *Williams 3921, 3971*. "Cordoncillo."

Piper subtextum Trelease, sp. nov.

Frutex 3–4-metralis nerviis folii subtus adpresso-pubescentibus exceptis glaber, internodiis floriferis brevibus modice crassis; folia lanceolato-oblonga vel elliptico-oblonga anguste acuminata basi aliquanto inaequilaterali acuta, vel latere breviore obtuso, 15 cm. longa 5 cm. lata e dimidio inferiore pinnatinervia, nervis circa 6×2, in sicco tenuia, petiolo 5+2 mm. longo exalato; spicae primo curvae 90 mm. longae 3 mm. crassae, pedunculo 5 mm. longo; bracteae parvae rotundo-subpeltatae ciliolatae; baccae pressu subangulatae, stigmatibus minutis sessilibus.

Junín: Puerto Yessup, 400 meters, *Killip & Smith 26265* (type in U. S. Nat. Herb.), *26278*.

Piper suffruticosum Trelease, sp. nov.

Suffruticosa metralis ubique crispe flavo-villosa; folia rotundo-ovata vel elliptico-ovata acute acuminata basi cordata 13–15 cm. longa 8–10 cm. lata e dimidio inferiore pinnatinervia, nervis 3×2, in sicco tenuia rubescentia in statu adulto bullulata, petiolo 5 mm. longo; inflorescentia non visa.

Junín: Puerto Bermúdez, 375 meters, *Killip & Smith 26586* (type in U. S. Nat. Herb.).

Piper Sumpi Trelease, sp. nov.

Frutex glaber, internodiis floriferis modice gracilibus elongatis; folia late ovata breviter acuminata basi cordata 20–28 cm. longa 11–18 cm. lata e dimidio inferiore multiplinervia, nervis 6–7×2, in sicco viridia, petiolo 2–4 cm. longo infra medium alato; spicae oppositifoliae 130 mm. longae 6 mm. crassae mucronatae, pedunculo 15–20 mm. longo; bracteae rotundae vel semirotundae subpeltatae brunneae ciliatae; baccae subglobosae, stylo brevi crasso, stigmatibus 3 filiformibus.

Cuzco: San Miguel, Urubamba Valley, 2,340 meters, *Cook & Gilbert 967* (type in U. S. Nat. Herb.). "Sumpi."

Piper tabinense Trelease, sp. nov. *P. Hookerianum* Auct.

Frutex mediocris nervis folii subtus exceptis glaber; folia ovata acuminata basi rotundata 14 cm. longa 8 cm. lata e tertio inferiore pinnatinervia, nervis circa 4×2, subtus ad nervos subadpresso-pubescentia vel glabrescentia, coriacea sublucida, petiolo 1 cm. longo; spicae 50 mm. longae 5 mm. crassae obtusae, pedunculo vix 2 mm. longo.

Puno: Tabina, *Lechler 2081*, type.

Piper tardum Trelease, sp. nov.

Frutex 3-metralis, internodiis floriferis modice brevibus et gracilibus hamate hirsuto-hispidis; folia elliptica vel subovata acute acuminata basi rotundata, uno latere breviore, 16 cm. longa 6–7 cm. lata e dimidio inferiore pinnatinervia, nervis 5×2, supra valde granuloso-asperata, subtus laxe subtomentulosa ad nervos incurvo-pilosa, petiolo 10+2 mm. longo hirsuto; spicae 100 mm. longae 3 mm. crassae, pedunculo vix 10 mm. longo molliter piloso.

Junín: Colonia Perené, 680 meters, *Killip & Smith 25025* (type in U. S. Nat. Herb.).

Piper temptum Trelease, sp. nov.

Frutex gracilis glaber, ramulis pallido-granulosis; folia lanceolata vel elliptico-lanceolata acuminata basi acuta 11 cm. longa 3–4 cm. lata e dimidio inferiore pinnatinervia, nervis 4×2, subtus punctulata, petiolo 10 mm. longo; spicae fere rectae 80 mm. longae 3 mm. crassae.

Type collected in Peru, *Mathews 1713* (herb. Kew.).

Piper tenebricosum Trelease, sp. nov.

Frutex in sicco fuscus, internodiis floriferis gracilibus brevibus sparse sericeis; folia subelliptica ad oblanceolata vel obovata acuminata basi obliqua angustata et obtusa 8–10 cm. longa 3.5–5 cm. lata e dimidio inferiore pinnatinervia, nervis 5–6×2, supra minute granuloso-scabrida, subtus ad nervos adpresso-pubescentia, petiolo vix 5 mm. longo pubescente; spicae 80 mm. longae 2–3 mm. crassae acutatae, pedunculo 8 mm. longo griseo-pubescente; bracteae rotundo-subpeltatae ciliolatae.

Loreto: Fortaleza, lower Río Huallaga, 155–210 meters, *Llewelyn Williams 4201* (herb. Field Mus. No. 623,585, type). "Cordoncillo."

Piper tenuicuspe (Miq.) C. DC. in DC. Prodr. 16, pt. 1: 304. 1869. *Artanthe tenuicuspis* Miq. Lond. Journ. Bot. 4: 457. 1866.

A generally pale-villous shrub; leaves broadly oblanceolate, slender-acuminate, gradually narrowed to the inequilateral subcordulate base, 24 cm. long, 9.5 cm. wide, pinnately nerved from the lower half, the nerves 4+5, glabrous above; petiole barely 3+3 mm. long; spikes 110 mm. long, 3 mm. thick; peduncle 5 mm. long, hirtellous.

Type from Peru, *Mathews 1704*.

Piper tenuicuspe var. **nervosius** Trelease, var. nov.

Folia 6–7 cm. lata basi fere aequilaterali distincte cordulata.

Huánuco: Cochero, *Poeppig 1463* (type in herb. Vienna).

Piper tenuistylum C. DC. in DC. Prodr. 16, pt. 1: 260. 1869. *Peltobryon Mathewsii* Miq. Lond. Journ. Bot. 4: 441. 1866, non *Piper Mathewsii* C. DC.

A glabrous shrub, or with the petiole and nerves puberulent beneath; leaves elliptic or subovate, acuminate, acute-based, 14 cm. long, 6 cm. wide, pinnately nerved throughout; petiole 10–15 mm. long; spikes 55 mm. long, 5 mm. thick; peduncle scarcely 10 mm. long; bracts inflexed-subpeltate; berries globose, with a slender style; stigmas spreading.

Type from Peru, *Mathews 1710*.

Piper Tessmanni Trelease, sp. nov.

Frutex, ramulis subtomentosis; folia elliptica obscure acuminata basi subaequilaterali acuta 24 cm. longa 10 cm. lata undique pinnatinervia, nervis circa 10×2, supra fusco-granulosa, subtus barbato-pubescentia, petiolo 2–3 cm. longo; spicae curvae 50 mm. longae 10 mm. crassae, mucronatae, pedunculo 10 mm. longo; bracteae rotundo-subpeltatae ciliatae, stigmatibus 3 brevibus, stylo longo.

Loreto: Mouth of Río Santiago, *Tessmann 4197* (type in herb. Berol.).

Piper timbuchianum Trelease, sp. nov.

Frutex nodosus, internodiis floriferis brevibus gracilibus, inferioribus crassioribus transiente pubescentibus; folia lanceolata longiacuta basi rotundata vel typice subabrupte acuta 7–11 cm. longa 2–3 cm. lata ubique pinnatineriva, nervis 6×2, subtus ad nervos crispo-pubescentia, petiolo 5 mm. longo in foliis majoribus alato crispo-pubescente; spicae juvenes 8 mm. longae 2 mm. crassae non mucronatae, pedunculo patente filiformi 7 mm. longo pubescente; bracteae rotundo-subpeltatae anguste albo-marginatae.

Loreto: Timbuchi, Río Nanay, *Llewelyn Williams 1036* (herb. Field Mus. No. 617,129, type).

Piper tingens Trelease, sp. nov.

Suffrutex 2-metralis nervis folii subtus griseo-puberulis exceptis glaber, internodiis superioribus brevibus comparate gracilibus; folia elliptica subacuminata basi angustata obscure cordulata, uno latere paullo breviore, 15–18 cm. longa 8–11 cm. lata e dimidio inferiore pinnatinervia, nervis 6×2, in sicco tenuia et in statu adulto subrugosa, petiolo 2 cm. longo alato; spicae 120 mm. longae 3 mm. crassae, pedunculo gracili 10 mm. longo; bracteae rotundo- vel crescentico-subpeltatae ciliatae.

Loreto: Yurimaguas, 180 meters, *Ynes Mexia 6072* (type in herb. Univ. Calif.).

Piper tocacheanum C. DC. in DC. Prodr. 16, pt. 1: 264. 1869.

A glabrous, glandular-punctulate shrub; leaves elliptic or lance-elliptic, subacuminate, rather abruptly acute at the base, 26–30 cm. long, 10–15 cm. wide, pinnately nerved throughout; petiole rather short, winged by the decurrent blade; spikes 110 mm. long, 5 mm. thick; peduncle 10 mm. long, curved; berries round; stigmas sessile.

San Martín: Tocache, *Poeppig 1918, D1918*, type.

Piper tortuosivenosum Trelease, sp. nov.

Frutex metralis, internodiis modice crassis, superioribus brevibus sordido-villosis; folia lanceolata vel ovata acuta vel subacuminata basi rotundata et fere sessilia vel inferiora basi subcordulato-truncata et 1 cm. longe petiolata, petiolo vaginante, 18–22 cm. longa 7–10 cm. lata e dimidio inferiore pinnatinervia, nervis 4–5×2, supra et subtus at ad nervos sparse crispo-villosa obscure viridia et tortuose venosa, subtus conspicue nigro-punctulata; spicae 35 mm. longae 5 mm. crassae obtusae, pedunculo 5 mm. longo laxe rigido-villoso; bracteae rotundo- vel crescentico-subpeltatae pallido-marginatae; stigmata apice styli inserta.

Loreto: Mouth of Río Santiago, 210 meters, *Ynes Mexia 6199* (type in herb. Univ. Calif.).

Piper transpontinum Trelease, sp. nov.

Frutex vel arbuscula 3–5-metralis nodosa, internodiis floriferis brevibus graciusculis laxe rigido-villosis; folia lanceolato-ovata acute acutata basi plus minusve obliqua truncata vel breviter subcordata 16 cm. longa 5–8 cm. lata e tertio inferiore submultiplinervia, nervis

circa 4×2, in sicco tenuia sublucida, subtus ad nervos rigido-villosa et inter nervos stellato-pilosa, petiolo 10–15 mm. longo villoso vaginante; spicae juvenes dense brunneo-tomentosae typice cuspidatae.

Junín: Perené Bridge, Paucartambo Valley, 700 meters, *Killip & Smith 25352* (type in U. S. Nat. Herb.), *25273*.

Piper transpontinum var. **ecordulatum** Trelease, var. nov.

Frutex 3–4-metralis; folia vix cordata 18 cm. longa 8 cm. lata; spicae floriferae 60 mm. longae 5 mm. crassae, pedunculo 10 mm. longo crispo-piloso; bracteae rotundo-subpeltatae pilosae; stigmata 3 gracilia, stylo fere aequilongo.

Junín: Perené, 680 meters, *Killip & Smith 25055* (type in U. S. Nat. Herb.).

Piper trichostylopse Trelease, sp. nov.

Frutex 2-metralis, internodiis floriferis modice brevibus et crassis transiente sparsissime villosis vel hirtellis; folia ovata vel lanceolato-ovata sensim acuminata basi cordulate subtruncata vel rotundata vel subacuta 16–25 cm. longa 7–15 cm. lata e dimidio inferiore submultiplinervia, nervis 5–6×2, supra glabra vel prope basin paullo pubescentia, subtus ad nervos ferrugineo-villosa et inter nervos crispo-pubescentia, petiolo 2–2.5 cm. longo villoso glabrescente alato; spicae oppositifoliae 100 mm. longae 4 mm. crassae, pedunculo crasso 10 mm. longo transiente plus minusve ferrugineo-villoso; bracteae rotundo- vel triangulari-subpeltatae ciliatae, floribus sessilibus perfectis; ovarium glabrum obovoideum in stylum aequilongum angustatum, stigmatibus 3 patentibus.

Huánuco: Posuso, 600 meters, *Macbride 4646* (herb. Field Mus. No. 535,721, type), *4664*.—Junín: La Merced, *5336*.

Piper trichostylopse var. **latum** Trelease, var. nov.

Magis glabrata, foliis majoribus 29 cm. longis 18 cm. latis.

Huánuco: Cushi, 1,500 meters, *Macbride 4849* (herb. Field Mus. No. 535,889, type).

Piper trichostylum C. DC. Bot. Jahrb. 40: 244. 1908.

A shrub, matted-villous throughout except for the short-hairy upper surface of the leaves; leaves ovate, acuminate, almost equilaterally truncate at the base with the blade abruptly contracted to the petiole, 21 cm. long, 13 cm. wide, submultiple-nerved from below the middle, the nerves 5×2, very rugose; petiole 2 cm. long, winged;

spikes 150–180 mm. long, 5 mm. thick; peduncle rather thick, 2 cm. long; bracts large, round-subpeltate, yellow-hairy; berries round, with a rather short, thick style; stigmas outcurved. Neg. 11069.

Puno: Sandía, at 2,800–3,000 meters, in bamboo thickets, *Weberbauer 728*, type.

Piper tridentipilum C. DC. Notizbl. Bot. Gart. Berlin 7: 490. 1917.

A shrub, stellately crisp-subtomentose except for the upper leaf surface; leaves elliptic-ovate, scarcely acuminate, subtruncate at the base with one side slightly shorter and concave, 24 cm. long, 12 cm. wide, pinnately nerved throughout; petiole 15+5 mm. long; spikes slightly curved, 50 mm. long, 5 mm. thick; peduncle 2 cm. long; bracts triangular-subpeltate, ciliate; berries round; stigmas short and broad, sessile.

Type from Seringal São Francisco, Alto Rio Acre, Brazil, *Ule 9277*. Probably also in adjacent Peru.

Piper tristigmum Trelease, sp. nov.

Frutex glaber vel ad novellos et folii nervos subtus obscure puberulus; folia elliptica anguste acuminata basi fere aequilaterali acuta 11–12 cm. longa 4.5–5 cm. lata e 2 tertiis inferioribus pinnatinervia, nervis longioribus circa 6×2, in sicco firma viridia albopunctulata sed laevia, petiolo 5 mm. longo anguste alato; spicae 25–35 mm. longae 5 mm. crassae caudatae, pedunculo 5 mm. longo; bracteae concavae; baccae globosae majusculae, stylo distincto, stigmatibus 3 rotundatis.

Loreto: Caballo-cocha on the Amazon River, *Llewelyn Williams 2029* (herb. Field Mus. No. 613,314, type).

Piper tuberculatum Jacq. Icon. Rar. 2: 2. *pl. 210*. 1786. *Steffensia tuberculata* Kunth, Linnaea 13: 614. 1839. *Artanthe tuberculata* Miq. Syst. 497. 1844; Ill. Piper. *pl. 86*.

A slender-twigged, nodose shrub, glabrous except for the more or less transiently puberulent axes and nerves beneath; leaves elliptic, rather abruptly acute, rounded at the base or cordulate with one side distinctly shorter, 9–14 cm. long, 5–7 cm. wide, pinnately nerved throughout, drying thin; petiole 5+5 mm. long, winged throughout; spikes 100 mm. long, 3–4 mm. thick or larger; peduncle 10–15 mm. long; bracts triangular-subpeltate; berries depressed-ellipsoid; stigmas 3, small, broad, sessile.

Loreto: Puerto Arturo, in pasture, 200 meters, *Williams 5184.* Masisea, *Killip & Smith 26862.* Santa Rosa, in forest, *Williams 4805.*—San Martín: Tarapoto, edge of river, *Williams 5442.* Widely distributed, from Brazil to Mexico. "Cordoncillo."

Piper tumidicondyli Trelease, sp. nov.

Frutex glaber, internodiis brevibus, nodis incrassatis; folia lucida ovata subacuminata basi rotundata, uno latere paullo breviore, 10–13 cm. longa 4–6 cm. lata e dimidio inferiore submultiplinervia, nervis circa 5×2, in sicco coriacea anguste revoluta, petiolo 10 mm. longo; spicae pendulae curvae 40 mm. longae 5 mm. crassae breviter cuspidatae, pedunculo 10 mm. longo; bracteae rotundo-subpeltatae, margine lato brunneo.

Loreto: Rancho Indiano, Iquitos, 110 meters, *Ynes Mexia 6431* (type in herb. Univ. Calif.).

Piper ucayalianum Trelease, sp. nov.

Frutex, internodiis graciusculis superioribus brevibus sparse hispidis et serius minute pallido-granulosis; folia lanceolato-ovata sensim acuminata basi paullo inaequilaterali rotundata 12–16 cm. longa 5–7.5 cm. lata e dimidio inferiore pinnatinervia, nervis 5×2, in sicco ex parte rugosa, supra minute granulosa et aliquanto lepidota, subtus ad nervos strigosa, petiolo 8+2 mm. longo hispido; spicae 110 mm. longae 2 mm. crassae, pedunculo vix 10 mm. longo sparse scabro-hispido; bracteae transverso-subpeltatae ciliolatae.

Loreto: Lower Río Ucayali, *Tessmann 3011* (type in herb. Stockholm).

Piper udisilvestre C. DC. Notizbl. Bot. Gart. Berlin 7: 485. 1917. *P. longifolium* var. *pilosum* C. DC. op. cit. 492.

A somewhat dark-punctulate shrub, glabrous except for the somewhat puberulent nerves beneath; leaves elliptic-subobovate, acute at both ends, 35 cm. long, 18–20 cm. wide, pinnately nerved throughout; petiole 2 cm. long; spikes in fruit 70–90 mm. long, 20 mm. thick; peduncle thick, 15 mm. long; berries obconic-obovoid, with a long slender style; stigmas small.

Loreto: Pampas de Ponasa, *Ule.* Type from Seringal São Francisco, Alto Rio Acre, Brazil, *Ule 9296.*

Piper ulceratum Trelease, sp. nov.

Frutex, internodiis superioribus modice brevibus et crassis flavido-villosis; folia elliptico-obovata acuminata basi breviter

cordata 22 cm. longa 9 cm. lata e tertio vel dimidio inferiore pinnatinervia, nervis 6–7×2, bullulata, supra sparse stellato-pilosa, subtus villosa, petiolo crasso vix 10 mm. longo villoso; inflorescentia non visa.

San Martín: San Roque, 1,350–1,500 meters, *Llewelyn Williams 6962* (herb. Field Mus. No. 622,978, type).

Piper ulceratum var. **angustifolium** Trelease, var. nov.

A typo differt foliis lanceolato-ellipticis vel lanceolatis 16–20 cm. longis 6–8 cm. latis, basi angustata obscure cordulatis; spicae curvae caudatae 30 mm. longae 3 mm. crassae, pedunculo filiformi 40 mm. longo reflexo hirsuto; bracteae crescenticae; baccae rotundatae vel cum rhachi subelongatae paullo mucronatae, stigmatibus 3 sessilibus.

San Martín: San Roque, 1,350–1,500 meters, *Llewelyn Williams 6982* (herb. Field Mus. No. 629,612, type).

Piper Uleanum Trelease, sp. nov.

Frutex rigide hirsuto-villosus; folia subovato-elliptica acuminata basi aequilaterali et sublata paullo cordulata 12 cm. longa 5 cm. lata e dimidio inferiore pinnatinervia, nervis 5×2, rugosa, supra granuloso-scabra, subtus minute punctulata et ad nervos incurvo-hirsuta, petiolo vix 10 mm. longo; spicae 80 mm. longae 2 mm. crassae rectae, pedunculo 10–15 mm. longo sparse hirsuto; bracteae subpeltatae parvae, margine ciliato plumbeo-tincto.

Type from Seringal Auristella, Rio Acre, Brazil, *Ule 9288* (type in herb. Berol.), and probably extending into Peru.

Piper unguiculatum R. & P. Fl. 1: 34. *pl. 57.* 1798. *P. glaucescens* Jacq. Eclog. 112. *pl. 76.* 1811. *Gonistum unguiculatum* Raf. Sylv. Tellur. 85. 1838. *Enckea unguiculata* Kunth, Linnaea 13: 592. 1839. *E. glaucescens* Kunth, Linnaea 13: 594. 1839.

A slender shrub, glabrous or the axes and leaf bases transiently and sparsely velvety; leaves ovate, blunt-acuminate, obtuse or subtruncate at the base with the margin commonly inrolled next the petiole, 5–9 cm. long, 3–4 cm. wide, 5–7-nerved; spikes 20–40 mm. long, 3 mm. thick; peduncle 15 mm. long; bracts spatulate; berries ovoid; stigmas sessile.

Huánuco: Posuso and Chinchao, *Ruiz & Pavón*, type. Introduced into cultivation at Madrid by Ruiz and Pavón, and at present known only as cultivated in botanical gardens.

Piper urubambanum Trelease, sp. nov.

Frutex glaber, ramulis gracilibus; folia ovata acuminata basi aequaliter rotundata, uno latere paullo breviore, 12–14 cm. longa 4.5–7 cm. lata e dimidio inferiore multiplinervia, nervis circa 4×2, petiolo gracili 15–18+2 mm. longo alato; spicae oppositifoliae 60–70 mm. longae 5 mm. crassae, pedunculo gracili 10 mm. longo; bracteae triangulari-subpeltatae, margine flavescente ciliato; baccae subglobosae, stigmatibus 3 filiformibus sessilibus deciduis.

Cuzco: San Miguel, Urubamba Valley, 1,800 meters, *Cook & Gilbert 1122* (type in U. S. Nat. Herb.).

Piper velutininervosum Trelease, sp. nov.

Arbuscula 4–5-metralis petiolis et folii nervis subtus velutinis exceptis glabra, internodiis superioribus gracilibus elongatis; folia subovata subacuta basi inaequilaterali cordata, sinu aperto, latere longiore auriculato, 28 cm. longa 14 cm. lata e 2 tertiis inferioribus subpinnatinervia, nervis 5×2, in sicco tenuia lucida brunnescentia, petiolo 4–6 cm. longo, uno latere 5 mm. breviore alato; spicae juvenes parvae breviter pedunculatae.

Junín: East of Quimirí Bridge, La Merced, 800–1,300 meters, *Killip & Smith 24006* (type in U. S. Nat. Herb.).

Piper velutinum HBK. Nov. Gen. & Sp. 1: 52. 1815. *Schilleria velutina* Kunth, Linnaea 13: 701. 1839. *Artanthe velutina* Miq. Syst. 471. 1844.

A white-hirsute-villous shrub; leaves lance-ovate or oblong, acuminate, inequilaterally obtuse at the base, 14–15 cm. long, 4.5–5 cm. wide, pinnately nerved from the lower half, the nerves about 5×2; petiole 5–10 mm. long; spikes curved, 60 mm. long, 2 mm. thick; peduncle 10 mm. long; berries depressed-cylindric; stigmas sessile.

Cajamarca: Zaulaca and San Felipe, Jaén de Bracamoros, *Humboldt* at Paris, and in herb. Willdenow as *No. 667*.

Piper verbascifolium (Miq.) C. DC. in DC. Prodr. 16, pt. 1: 258. 1869, as to Peru only. *Artanthe verbascifolia* Miq. Syst. 431. 1844. *P. acutifolium* var. *subverbascifolium* C. DC. Bot. Jahrb. 40: 247. 1908.

A soft-hairy shrub; leaves sublanceolate-elliptic, gradually pointed, inequilateral at the base and cordate-auricled with lateral sinus, 16–20 cm. long, 5–7 cm. wide, pinnately nerved from the lower half, the nerves 7+8, glabrescent above, bullulate; petiole scarcely

5 mm. long; spikes nearly straight, becoming 90 mm. long, 5 mm. thick; peduncle 5 mm. long; bracts roundish-subpeltate, ciliolate; berries rounded-subtriquetrous; stigmas 3, linear, sessile. Neg. 7233.

Type from Peru, *Dombey 932; Gay* and *Grisar.*—Amazonas: *Mathews* in 1836.—Huánuco: Casapí, *Mathews, 1715.* Huánuco, *Mathews 1795* (with cuspidate spikes). Muña, *Pearce* in 1863. Huassihuassi, *Dombey 504.*—Junín: Tarma, *Weberbauer 2163.*—Loreto: Pongo de Manseriche, *Tessmann 4779.*

Piper veredianum Trelease, sp. nov.

Frutex nodosus glaber glanduloso-punctulatus; folia lanceolata acute acuminata basi inaequilaterali longe acuta 14–16 cm. longa 5–6 cm. lata e 2 tertiis inferioribus pinnatinervia, nervis circa 5×2, petiolo 1 cm. longo, lamina basi decurrente; spicae 80 mm. longae 3 mm. crassae, pedunculo 10 mm. longo; bracteae triangulari-subpeltatae ciliatae; baccae teretes vel 3–4-gonae truncatae, stigmatibus 3 sessilibus.

Loreto: Caballo-cocha on the Amazon River, *Llewelyn Williams 2106* (herb. Field Mus. No. 608,810, type). "Cordoncillo."

Piper verruculaecaule Trelease, sp. nov.

Frutex 3–4-metralis, internodiis superioribus gracilibus breviusculis evanescente brevipilosis serius albide granuloso-asperatis; folia lanceolato-elliptica vel subobovato-elliptica acuminata basi subinaequilaterali acuta 15–20 cm. longa 6–10 cm. lata, supra minute granuloso-asperata, e dimidio inferiore pinnatinervia, nervis 6×2, subtus ad nervos incurvo-hispida, petiolo 10–15+3 mm. longo exalato; spicae juveniles 30 mm. longae 2 mm. crassae.

Ayacucho: Near Kimpitiriki, Apurímac Valley, 400 meters, *Killip & Smith 23025* (type in U. S. Nat. Herb.; dupl. in herb. Field Mus.).

Piper verruculaefolium Trelease, sp. nov.

Frutex 1.5 m. altus, internodiis floriferis brevibus gracilibus incurvo-hirsutis in statu adulto granulosis; folia lanceolata anguste acuminata basi inaequilaterali obtusa vel subcordulata 9–12 cm. longa 3–4 cm. lata e dimidio inferiore pinnatinervia, nervis 4–5×2, supra rugoso-verruculosa et primum scabra, subtus ad nervos hirsuta, petiolo vix 5+3 mm. longo exalato hirsuto; spicae 70 mm. longae 3 mm. crassae cuspidatae, pedunculo 6 mm. longo primo granuloso; bracteae rotundo-subpeltatae ciliolatae.

Junín: La Merced, 700 meters, *Killip & Smith 24089* (type in U. S. Nat. Herb.).

Piper villosispicum Trelease, sp. nov.

Arbuscula sordide villosa 4–6-metralis, internodiis floriferis breviusculis gracilibus; folia oblonga anguste acuminata basi inaequilaterali truncato-cordulata 16 cm. longa 6 cm. lata e dimidio inferiore submultiplinervia, nervis 5×2 inferne approximatis, in sicco chartacea lucida, petiolo 5 mm. longo vaginante; spicae 40–50 mm. longae 5–6 mm. crassae, pedunculo crasso 10 mm. longo; bracteae dense sordido-villosae; baccae rotundatae, stigmatibus 3 apice styli insertis.

Junín: Santa Rosa, Pichis Trail, 625–900 meters, *Killip & Smith 26178* (type in U. S. Nat. Herb.). Schunke Hacienda, La Merced, *Killip & Smith 24533*.

Piper virgulticola Trelease, sp. nov.

Frutex 5-metralis nodosus, internodiis superioribus gracilibus brevibus ochroleucis dense hispidis; folia lanceolato-elliptica acute acuminata basi inaequilateralia, saltem latere breviore basi rotundato, 15–16 cm. longa 5–6.5 cm. lata e dimidio inferiore pinnatinervia, nervis circa 6×2, supra albo-granulosa et breviter scabra, subtus ad nervos incurvo-pubescentia, petiolo 5–10+2 mm. longo dense hispido; spicae 70 mm. longae 2–3 mm. crassae, pedunculo 5 mm. longo hispido; bracteae rotundo-subpeltatae ciliolatae.

Loreto: In thicket, Fundo Indiano, Iquitos, 110 meters, *Ynes Mexia 6430* (type in herb. Univ. Calif.).

Piper viridilimbum Trelease, sp. nov.

Frutex glaber 3-metralis, internodiis floriferis gracilibus breviusculis; folia lanceolata acuminata basi acuta, uno latere paullo breviore, 16 cm. longa 6.5–7.5 cm. lata e dimidio inferiore submultiplinervia, nervis 4–5×2, in sicco tenuia viridia, subtus pallidiora, petiolo 12–15+2 mm. longo infra medium vaginante; spicae juvenes 10 mm. longae 1 mm. crassae, pedunculo duplo breviore.

Ayacucho: Kimpitiriki, Río Apurímac Valley, 400 meters, *Killip & Smith 22990* (type in U. S. Nat. Herb.).

Piper volubile C. DC. Bot. Jahrb. 40: 245. 1908.

A climbing shrub; twigs subretrorsely appressed-gray-hirsute; leaves lanceolate, slender-acuminate, obtuse or inequilaterally subacute at the base, 11 cm. long, 4 cm. wide, pinnately nerved from

the lower half, the nerves 4–5×2, coarsely white-granular-scabrous on both sides with the nerves beneath subappressed-hairy; petiole scarcely 5 mm. long; spikes gently curved, 100 mm. long, 3 mm. thick, mucronate; bracts subpeltate; berries minute, subterete; stigmas sessile. Neg. 11079.

Huánuco: Monzón, at 900–100 meters, in forest, *Weberbauer 3444*, type.

Piper xapurayense C. DC. Notizbl. Bot. Gart. Berlin 6: 492. 1917.

A shrub with axes and nerves beneath stiffly subvillous; leaves elliptic, subacuminate, almost equilaterally cordulate, 9–16 cm. long, 4–7 cm. wide, pinnately nerved from the lower half, the nerves 4–6×2, glabrescent above; petiole 10 mm. long, winged; spikes 15 mm. long, 10 mm. thick, cuspidate; berries round, with a long style; stigmas short.

Type from Alto Zapury, Seringal São Francisco, Rio Acre, Brazil, *Ule 9285, 9286*. Doubtless also in Peru.

Piper yananoanum Trelease, sp. nov.

Arborescens 10-metralis nodosa, internodiis floriferis elongatis gracilibus ad nodos paullo pilosulis minute pallido-granulosis; folia lanceolata ad ovata acuminata basi subacuta 12–18 cm. longa 4.5–9.5 cm. lata e dimidio inferiore submultiplinervia, nervis 4–5×2, subtus ad nervos pilosula, petiolo 1.5 cm. longo velutino alato; spicae oppositifoliae 150 mm. longae 3–5 mm. crassae, pedunculo vix 10 mm. longo velutino; bracteae triangulari-subpeltatae ciliatae, floribus sessilibus perfectis; baccae obconicae glabrae, stigmatibus 3 patentibus subsessilibus.

Huánuco: Yanano, 1,800 meters, *Macbride 3796* (herb. Field Mus. No. 534,858, type).

Piper yessupianum Trelease, sp. nov.

Frutex glaber 1–2-metralis, internodiis floriferis breviusculis crassiusculis; folia lanceolato-oblonga sensim acutata basi subaequilaterali acuta 16–20 cm. longa (et ultra?) 4.5–6 cm. lata ubique pinnatinervia, nervis 8–10×2, in sicco tenuia fusca sublucida, petiolo in foliis superioribus nullo, lamina ad caulem decurrente, in foliis inferioribus 2 cm. longo sursum e basi alato; spicae 35 mm. longae 5 mm. crassae, pedunculo gracili 15 mm. longo; bracteae concavae glabrae; stigmata sessilia.

Junín: Puerto Yessup, 400 meters, *Killip & Smith 26373* (type in U. S. Nat. Herb.).

Piper yurimaguasanum Trelease, sp. nov.

Frutex 3–6-metralis nodosus, internodiis floriferis brevibus gracilibus primo puberulis; folia lanceolato-elliptica vel oblonga atque acuta, basi inaequilaterali rotundata ubique pinnatinervia, subtus ad nervos aliquanto crispo-puberula, petiolo 3+8 mm. longo alato; spicae 80 mm. longae 2 mm. crassae, pedunculo gracili 10 mm. longo paullo puberulo; bracteae rotundo- vel triangulari-subpeltatae ciliatae; baccae paullo cum rhachi elongatae, stigmatibus 3 sessilibus.

Loreto: Iquitos, 100 meters, *Killip & Smith 27274* (type in U. S. Nat. Herb.), *29045*. Yurimaguas, *Killip & Smith 27628, 29045*.—San Martín: Tarapoto, *Williams 5442*. Lower Río Huallaga, *Williams 5184*.

4. **PLEIOSTACHYOPIPER** Killip, Smith & Trelease, gen. nov.

Frutices, foliis ut in sectione *Enckea* generis *Piper* palmatinerviis; flores perfectae, in spicas globosas solitarias et pedunculum ebracteatum oppositifolium terminantes vel typice cum pedunculo collaterali 1-bracteato spica solitaria globosa terminato dispositae, perfectae; ovarium in stylum aequilongum attenuatum.

Type species, *Pleiostachyopiper nudilimbum* (C. DC.) Killip, Smith & Trelease.

Pleiostachyopiper nudilimbum (C. DC.) Killip, Smith & Trelease, comb. nov. *Piper nudilimbum* C. DC. Verh. Bot. Ver. Brandenb. 47: 113. 1905.

A glabrous shrub with slender, green branches; leaves elliptic, varying to lance-ovate, gradually acute, 11–16 cm. long, 5–8 cm. wide, 5-nerved, drying firm and green, the petiole 10–15 mm. long; spikes almost globose, 10 mm. long and 10 mm. broad, the peduncle about as long as the spike, that of the collateral spike supported by a stalk 1 or even 2 cm. long with a narrow bract at the top; bracts clavate-subpeltate; berries ovoid, with an equally long style; stigmas 3, broad, connivent.

Junín: Puerto Bermúdez, *Killip & Smith 26443*.—Loreto: Soledad, *Killip & Smith 29562, 29731*.—San Martín: Chorrillo, *Tessmann 30383*. Type from Jurua Miry, Amazonas, Brazil; also Monte Mo, *Ule 9281;* Seringal São Francisco, *Ule 9282*.

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